GEO Environmental Engineering

PHASE 1: DESK TOP STUDY REPORT

(PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT)

PROPOSED RESIDENTIAL DEVELOPMENT

LAND AT GRIFFIN CLOSE, FRIZINGTON

CUMBRIA

FOR:

THOMAS ARMSTRONG CONSTRUCTION LIMITED

GEO Environmental Engineering

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DOCUMENT CONTROL SHEET

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Signature:

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Client Title: Thomas Armstrong Construction Ltd

CONTENTS

1.0 Introduction

1.1 Instruction

GEO Environmental Engineering (GEO) Ltd has completed a Phase 1: Desk Top Study Report (Preliminary Risk Assessment) for a former residential care home located off Griffin Close within Frizington, Cumbria to determine any potential geohazards that may affect the development with new-build residential properties.

Geo Environmental Engineering Ltd has been commissioned to complete the report by the Client, Thomas Armstrong Construction Limited.

The Phase 1: Desk Top Study (DTS) Report is suitable for submission to the Local Planning Authority as part of a planning application.

The site is currently undergoing consideration by the Client for residential re-development. At this stage, the proposed development is to comprise new-build residential houses with private gardens and general areas of soft landscaping being incorporated into the final design. Further development details are available from the Client.

1.2 Aims and Objectives

The main objective of this Phase 1: Desk Top Study (DTS) Report is to assess the geological and environmental sensitivity of the development area and the surrounding environs to determine any potential geohazards that may impact the proposed development. Particular attention made to any potentially contaminative industries or processes that may have taken place on site or immediately adjacent sites, which may be considered as potentially posing a risk of ground/groundwater contamination and ground gas that could negatively affect the proposed end users, adjacent sites and controlled waters. This Phase 1: Desk Top Study Report has been completed in accordance with the following documents:

- Land Contamination Risk Management Stages 1 to 4 (LCRM – www.gov.uk).
- CLR11: Model Procedures for the Management of Land Contamination. DEFRA/EA, 2004.
- BS10175:2011: Code of Practice for the Investigation of Potentially Contaminated Sites.
- BS5930:2015: Code of Practice for Site Investigations.
- UK Specification for Ground Investigation, 2nd Edition. Site Investigation Steering Group, 2011.
- Effective Site Investigation. Site Investigation Steering Group, 2013.

1.3 Third Party Data Sources

During the completion of this DTS information has been obtained and reviewed from the following sources:

- British Geological Survey (BGS) Geological Mapping Data (Sheet NY01NW).
- Environment Agency (EA).
- Enviro+Geo Insight Ground Sure Report – (GSR – Appendix II).
- Ordnance Survey Historical Maps (Appendix III).
- The Coal Authority Coal Mining Report and Online Database (Appendix IV).

A site walkover was completed in August 2022. A summary of the site walkover is included in Section 2.0 and photographs of the site are presented in Appendix I.

1.4 Limitations of Use

The information, assessments, conclusions and recommendations presented within this Phase 1: Desk Top Study (DTS) Report are solely based on, and are limited to, the boundaries of the site, the immediate area around the site, and the historical use(s), with the approximate extent of the site marked on the plans in Appendix I. Any items not specifically mentioned cannot be assumed to be covered.

This DTS has been completed utilising information relating to the physical, environmental and industrial setting of the development area, highlighting, where possible, any potential geohazards that might be encountered when considering the future redevelopment of this land, with this DTS reflecting a proposed end use, as considered by the developer (i.e. “Best Fit” CLEA classification of *Residential*).

Therefore, if a change in the proposed end use is envisaged, then a reassessment of the development area should be carried out.

Consequently, any comments, opinions, diagrams, cross sections and/or sketches contained within the DTS, and/or any configuration of the findings is purely conjectural and given for guidance only as no intrusive investigation works have been completed by Geo Environmental Engineering Ltd and it is recommended that confirmation of the anticipated ground conditions should be considered before development proceeds.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders, including warranty providers in order to seek their approval of the findings prior to undertaking any works on site. GEO accepts no responsibility for the accuracy of third party information involved within the completion of this report.

Reliance on the report is for the named Client only. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Geo Environmental Engineering Ltd. Reliance on the report is strictly in accordance with Geo Environmental Engineering Ltd standard terms and conditions.

2.0 Site Location and Development Proposals

2.1 Site Location

The site comprises a rectangular shaped parcel of land located off Griffin Close within Frizington, Cumbria. The site is centred on National Grid Reference (NGR) 303358, 517388 and covers an area of approximately 0.51Ha. The surrounding area comprises residential properties to the south and east, including a Surgery and Car Home. Agricultural fields are to the north and west.

2.2 Existing Site Levels

The majority of the site was noted to be relatively level. A fall is noted from the east to the west, with the eastern boundary being at a slightly higher elevation.

2.3 Existing Site Surfacing and Buildings

The site is derelict and was formerly a 1970's care home that was demolished. Some tarmac hardstand and block paving is present with the remaining area being unmanaged grass.

There were no visible areas of burning, bonfires or "fly tipping". In general, the site appeared to be in a reasonable condition with respect to "housekeeping".

2.4 Existing Infrastructure and Utilities

A review of statutory utility supplier records lies out-with the scope of this report. As the site lies within an urbanised residential area and was previously developed it is likely that mains and private utility connections will be present on and adjacent to the site. It is recommended that consideration be made to a utility investigation and that consultation be made with the utility providers. Utility covers were evident during the site walkover.

2.5 Development Proposal

The proposed development is thought to comprise the construction of new-build residential houses with private gardens and general areas of soft landscaping being incorporated into the final design. Further development details are available from the Client.

2.6 Previous Intrusive Works & Reports

GEO are unaware of any previous reports for the site.

3.0 Geo-Environmental Setting

- Sections 3.1 to 3.4 refer to the Enviro+GeoInsight Ground Sure Report (GSR - Appendix II).
- Section 3.5 refers to the historical map extracts included in Appendix III.

3.1 Development Area Geology

A geological review of the site has been undertaken using information provided on published Geological Plans in conjunction with the Ground Sure Report (GSR) contained in Appendix II.

3.1.1 Made Ground

A review of published geological plans and the GSR does not indicate the presence of made ground materials on site. However, as the site has previously been developed some made ground is anticipated. This is likely to comprise disturbed natural materials with anthropogenic debris. Relict structures may be present associated with the former building (foundations and floor slabs).

No significant areas of infilling/made ground are noted within c.250m of the site.

3.1.2 Drift Geological Deposits

A review of published geological plans and the GSR indicates that the site is underlain by Glacial Till, which typically comprises sandy gravelly clay with sand, gravel, cobbles and boulders. Areas close to the site (to the north) are noted as being devoid of drift geological deposits, so rockhead could potentially be close to surface beneath residual soils.

The GSR (Section 17.0) within Appendix II identifies the following geohazards and indicates a preliminary level of risk:

- Shrink-swell clays — very low risk.
- Running sands — very low risk.
- Compressible deposits — negligible risk.
- Collapsible deposits — very low risk.
- Landslides — very low risk.

Intrusive site investigations would be beneficial to confirm ground conditions for foundation, highway and soak away design.

3.1.3 Solid Geological Deposits

The Solid geological deposits below the site are recorded as the Pennine Middle Coal Measures, which typically comprise mudstone, siltstone and sandstone with some productive coal seams.

The nearest named sub-cropping coal seam is on site and is thought to be the Bannock (BNOK) seam, which is noted by the BGS as being up to c.2.00m in thickness. The BNOK is indicated as sub cropping in the north east site area with a dip to the south west, passing beneath the majority of the site. If worked at shallow depth, the BNOK could pose a potential structural risk.

There is a negligible hazard rating with respect to dissolution of soluble rocks beneath the site.

In addition, the GSR does not record natural cavities within c.1km of the site.

3.1.4 Geological Features

No structural faults are inferred on site or within c.250m.

3.1.5 Historical Investigation Records

There are no records present on site, or within a representative distance.

3.1.6 Coal Mining Assessment

The Solid geological deposits below the site are recorded as the Pennine Middle Coal Measures, which typically comprise mudstone, siltstone and sandstone with some productive coal seams.

According to the geological plans the nearest named sub-cropping coal seam is on site and is indicated to be the Bannock (BNOK) seam, which is noted by the BGS as being up to c.2.00m in thickness. The BNOK is indicated as sub cropping in the north east site area with a dip to the south west, passing beneath the majority of the site. If worked at shallow depth without sufficient competent rock cover, the BNOK could pose a potential structural risk. The BGS identify three mine shafts in close proximity to the site, all to the north and north west.

A Coal Authority (CA) Consultants Coal Mining Report has been procured for the site and a copy is included in Appendix IV. In summary, the CA report identifies recorded coal and iron ore workings at significant depth (too deep to pose a structural risk, Slatey seam at c.119m depth). The CA do not identify the sub cropping BNOK coal seam indicated by the BGS. The CA information relating to mine shafts differs to the BGS, the CA identify two mine shafts to the immediate north of the site, with one indicated in the northern site area. The CA do not hold any records with regard to treatment of the shafts.

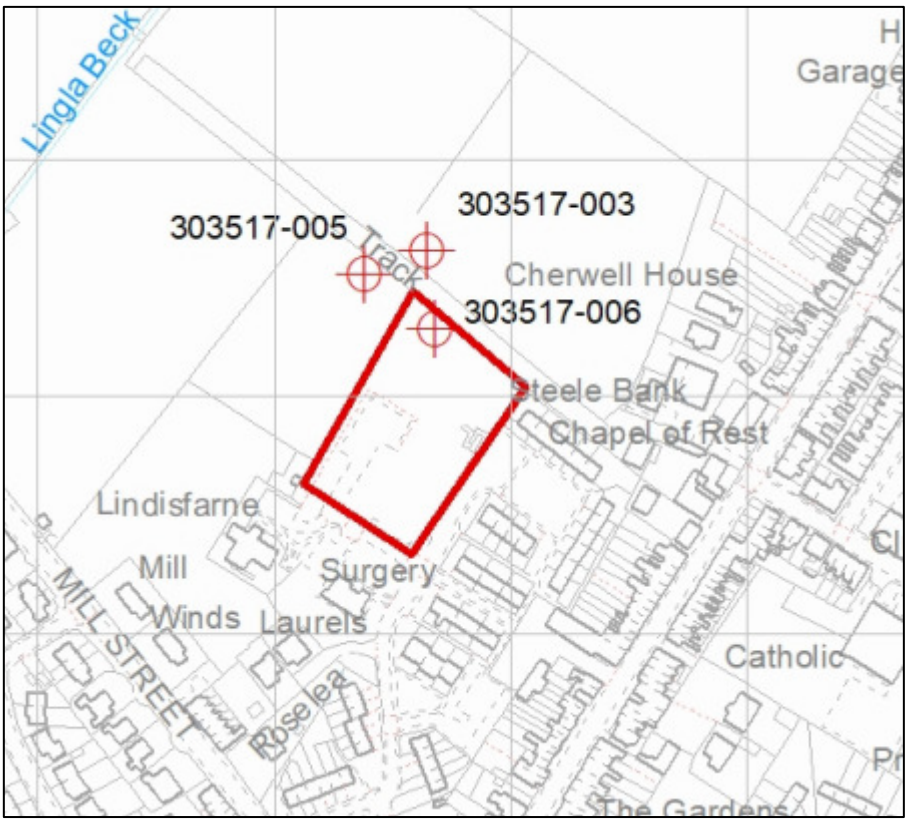


Figure 3.1 The Coal Authority Report Extract (Mine Shaft Locations)

Reference to the CA online database identifies the same mine shafts as the CA report.

Based on the information available, there may be a potential stability risk to the proposed development from unrecorded coal mine workings in the BNOK seam at shallow depth beneath the site. Likewise, if the mine shaft is present at the location identified by the CA, then that too poses a structural risk, whilst potentially acting as a conduit for mine gas migrations.

It is generally accepted that there is a risk to the proposed development if the rock cover over a worked coal seam is less than ten times the seam thickness (a ratio of 1:10). There is some debate as to the exact thickness of rock cover required to mitigate the risk of collapse or disturbance at the surface and the Coal Authority recommends caution on the use of the standard 1:10 'rule of thumb'. As such, the required cover thickness will depend on the competency of the overlying rock. As the BNOK is recorded as being up to c.2m in thickness, this would require c.20m of competent rock cover.

Therefore, it is recommended that intrusive site works (i.e., rotary boreholes) are completed to determine the risk to the proposed development from possible unrecorded shallow coal mine workings. In addition, investigations will be necessary to assess if the mine shaft in the north east site area exists. If present, it would require remedial measures and a sterile zone. The mine shaft may necessitate the alteration of the proposed site layout plan.

3.1.7 Non-Coal Mining and Quarrying Assessment

Information presented within the GSR (Appendix II) suggests that the site is not a risk of other types of mining that could include brine extraction, gypsum extraction or tin mining.

The GSR notes the following with respect to iron ore (vein mineral) mining:

> *"Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered"*

The CA record iron ore workings (No 7 Eye Ironstone) at c.232m depth. These workings are too deep to pose a structural risk.

The GSR notes that the site is not at risk of natural cavities. No historical quarrying / extraction features have been recorded on site, or within close proximity (c.250m).

3.1.8 Radon Gas Assessment

The GSR Section 19.1 indicates that the development site is not located within a Radon Affected Area as defined by the British Geological Survey (BGS) and Public Health England (PHE) as less than 1% of properties are above the action level. As a result, the BGS and PHE recommend that no radon protection measures are necessary.

3.2 Development Area Hydrogeology (Groundwater)

3.2.1 Made Ground/Soils

The near surface materials on site are likely to be classified as high permeability due to the urbanised setting (i.e. worst-case scenario adopted until proven otherwise).

3.2.2 Drift Geology

Given the anticipated Glacial Till deposits, a Secondary 'Undifferentiated' Aquifer is present below the site. This relates to formerly designated minor and non-aquifer deposits and are unlikely to be significant with respect to strategic resources.

3.2.3 Solid Geology

The GSR records the site to be underlain by a Secondary 'A' Aquifer (formerly Minor Aquifer) deposits, which are of variable permeability layers and are unlikely to be considered as a strategic resource.

3.3 Development Area Hydrology

3.3.1 Groundwater

Groundwater is unlikely to be encountered at shallow depth, however there is likely to be localised pockets of trapped surface infiltration within any topsoil, made ground and drift geological deposits present on site.

A review of the information in the GSR indicates the following:

- No "active" groundwater abstractions are recorded within c.500m of the site.
- No "active" surface water abstractions are recorded within c.1km of the development area.
- No "active" potable water abstraction licences are held within c.2km of the site.
- The site is not recorded as being within or within c.500m of a Source Protection Zone.

3.3.2 Surface Water Features

No surface water features are noted on site. Lingla Beck is noted c.148m west.

3.3.3 Current Surface Water Run-off

It is considered that the current surface water will find its way into areas of soft landscaping and/or across existing areas of hardstanding and will exhibit surface water interception and direction to the existing surface water management system (where present and undamaged).

3.3.4 Ground Infiltration Potential

The site is potentially underlain by (predominantly) cohesive soils, and they are unlikely to be effective as a potential soakaway.

3.4 Development Area Environmental Sensitivity

3.4.1 Site Ecology

No sensitive environmental designations such as Sites of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protection Areas (SPA), National Parks etc., are recorded within c.250m.

It is recommended that reference be made to Sections 10.0 & 11.0 of the GSR for further information (Appendix II).

3.4.2 Authorisations, Incidents and Registers

One licensed discharge to controlled waters is noted c.209m south west. Three EA pollution incidents are recorded within c.250m. The EA pollution incidents are all noted c.236m east. The nearest incident was Category 4 (No Impact) with respect to land and water impact, although they are noted as Category 2 (Significant) for air impact.

No other Authorisations, Incidents or Registers are indicated within c.250m of the site.

It is recommended that reference be made to Section 4.0 of the GSR for further information (Appendix II).

3.4.3 Determination of Contaminated Land (Part IIA)

A review of the GSR has indicated that the site is not currently recorded as Contaminated Land under Part IIA EPA 1990. In addition, no sites determined as Contaminated Land under Part IIA EPA 1990 are recorded within c.500m of the development area.

3.4.4 Historical Industrial Land Uses

- Historical Industrial Land Uses (Potentially Contaminative Uses) – None have been recorded on site although numerous entries (ten) have been recorded within c.250m of the site consisting of a smithy, fire stations and unspecified commercial/industrial. Unspecified heaps are noted c.254m west.
- Historical Tank Database – None recorded on site, but one is recorded within c.250m. The nearest was c.40m east and was unspecified.
- Historical Energy Features – None are recorded within c.250m.
- Historical Petrol and Fuel Site Database – None are recorded within c.250m of the site.
- Historical Garage Database – None are recorded on site although four are recorded within c.250m. The nearest is noted c.192m north east and is unlikely to be of significant concern.
- Historical Military Sites – None are recorded within c.250m of the site.

It is recommended that reference be made to Sections 1.0 and 2.0 of the GSR for further information (Appendix II).

3.4.5 Current Industrial Land Uses

Given the site is located within an existing residential urbanised setting, only four entries are recorded in the surrounding area (i.e. within c.250m), the nearest being located c.119m south east and associated with metal works and vehicle body repairs. The risk to the proposed development from these features is considered negligible.

3.4.6 Fuel Station Entries

According to information presented in the GSR (Section 4.2, Appendix II) there are no active, closed, under development or obsolete fuel filling sites recorded within c.250m.

3.4.7 Landfill and Waste Regulation/Management – Landfill and Other Waste Sites

No current or historical landfill sites are recorded within c.250m. No waste sites are recorded within c.250m. One waste exemption is recorded within c.250m. This is noted c.66m south.

It is recommended that reference be made to Section 3.0 of the GSR (Appendix II) for further information.

3.5 Development Area Historical Plan Appraisal

Section 3.5 is based on historical maps (Ordnance Survey extracts) and provides a summary of the site history, highlighting any industries, processes or activities that may be considered as Geohazards. Copies of historical map extracts covering the site and adjacent areas have been reviewed with selected extracts included within Appendix III.

3.5.1 On site and Surrounding Environs

The earliest legible map (c.1864) shows the site and surrounding area to be undeveloped (agricultural land). A Methodist Chapel is to the east with a row of terraced houses. By c.1899 the village of Frizington is established and the site remains undeveloped. Over the following years the village grows in size, predominantly with residential properties and associated amenities. No significant industrial processes, activities or land uses are noted.

From c.1981 the care home is present, occupying the majority of the site. Additional areas of housing have been developed on the eastern and southern sides of the site, with a surgery to the south. Google Streetview images identify the structure as two-storey and brick built, with a flat roof. Localised levelling is evident with a cut into the ground in the eastern site area. It is understood that the care home was demolished around c.2012.

Figure 3.2 Google Streetview Image

During the walkover (2022) the site was derelict with some tarmac hardstand present, with the remaining area being unmanaged grass.

There were no visible areas of burning, bonfires or “fly tipping”. In general, the site appeared to be in a reasonable condition with respect to “housekeeping”.

Site photographs are in Appendix I.

3.5.2 Overview

Geological plans and the CA note mine shafts on and close to the site. None are recorded on historical OS plans.

From the review of historical maps, it can be seen that the site and surrounding area has been developed and there is a potential for some made ground. However, no significant areas of infilling are suggested across the site, with the exception being the potential mine shaft in the north east site area. Some relict structures may be present associated with the former care home and its demolition.

No potentially contaminative industries, activities or processes are recorded on site, although some are noted within a potentially influencing distance (c.250m).

4.0 Conceptual Site Model

A Conceptual Site Model (CSM) has been designed using the information presented within this P1 DTS to provide a graphical representation of the anticipated ground, groundwater and ground gas conditions below the development area (Existing Site CSM). The CSM is presented within the below matrix and aids the completion of the Preliminary Qualitative Risk Assessment (PQRA – Section 5.0).

The CSM utilises the established *Source – Pathway – Receptor* pollutant linkage model and is designed to provide an improved understanding of the site characteristics, designing a Preliminary Screening Strategy (PSS) for the Potential Contaminants of Concern (PCOC's). This ensures adequate and appropriate Phase 2: Ground Investigation (P2 GI) Works are designed and undertaken for wide spread and targeted investigations, should they be deemed necessary.

During the P2 GI the CSM can be refined depending upon the outcomes of the intrusive works to ensure that appropriate remediation (if required) is completed to ensure the development area is "fit for purpose" in relation to the proposed end use. The CSM is presented below.

SOURCE-PATHWAY-RECEPTOR POLLUTANT LINKAGE MODEL
Sources:
S1 = Generic Made Ground: Potential Sources Identified – Historical information suggests that the site was undeveloped agricultural land prior to being developed with a residential care home during the 1970s that was demolished around 2012. Some made ground is anticipated on site associated with the construction and demolition of former structures, however, significant or widespread contamination is considered unlikely. The previous care home structure may have included asbestos containing materials and consideration to their presence should be made by the Design Team. PCOC's could include generic, organic and asbestos contaminants.
S2 = Ground Gas: Potential Sources Identified – There is a potential for unrecorded coal mine workings beneath the site at shallow depth, in addition to deeper recorded workings. The BGS and CA indicate mine shafts on and close to the site. These features could result in the generation and migration of ground gas. PCOC's include carbon dioxide and methane. At present, the site is not considered to be at risk of Radon and Radon Protection Measures are not necessary.
Pathways:
P1 = Inhalation of air (wind-blown particles, vapours, gasses)
P2 = Dermal/direct contact (not present as site is encapsulated by hardstanding)
P3 = Ingestion (not present as site is encapsulated by hardstanding)
P4 = Migration through services (potable water supply)
P5 = Direct contact with building materials (aggressive ground conditions for buried concrete)
P6 = Leaching from Soils (to underlying Aquifer)
Receptors:
R1 = Human Health (End users and Construction Workforce)
R2 = Controlled Waters
R3 = Building Materials and Buried Utilities
R4 = Flora and Fauna (proposed private gardens and soft landscaping)

5.0 Preliminary Qualitative Risk Assessment (PQRA)

5.1 Preliminary Qualitative Geotechnical Risk Assessment

The following Preliminary Geotechnical Risk Meter determines the potential level of risk associated with the geotechnical properties of the site, considering any potential geohazards identified by the information presented within the DTS.

Geotechnical:						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH

A risk level of HIGH to VERY HIGH is currently determined appropriate for this development area for the following reasons:

- Made ground is anticipated on site associated with previous developments and demolition of former structures.
- The GSR indicates that the site is underlain by Glacial Till. If clay soils are present then they could potentially be affected by the surrounding mature vegetation (mature trees), potentially requiring an increase in foundation depths.
- Surface water ponding and overland flow may occur particularly following periods of heavy rainfall.
- The BGS note the Bannock (BNOK) coal seam sub cropping on site, before dipping below the site (at shallow depth). This seam is recorded as being considerable in thickness, up to c.2m and would have likely been economically viable for extraction. The CA identifies a mine shaft in the northern site area. These two-mining related geohazards pose a structural and ground gas risk. If shallow coal mine workings are present within influencing depth of surface and without sufficient competent rock cover, then remedial measures (i.e., grouting) will be required. If the shaft is present, then it will require remedial measures and a sterile zone.

The above geotechnical assessment is solely based on the information provided and therefore Phase 2: Ground Investigation works are recommended, should planning permission be obtained, to determine ground/groundwater/gas conditions and to aid the design of foundations, retaining structures and highways, as per any specific requirements of the Design Team.

5.2 Qualitative Contamination Risk Assessment – Risk Meter

The following Ground Contamination, Groundwater Contamination and Ground Gas Risk Meter determines the potential level of risk associated with the redevelopment of the site when taking into account the anticipated *Sources – Pathways – Receptors* within the pollutant linkage model and CSM.

Ground Contamination: ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Groundwater Contamination: ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Ground Gas: *(Carbon Dioxide and Methane)* ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Radon Gas: ⇩						
	<1%	**1%-3%**	**3%-5%**	**5%-10%**	**10%-30%**	**>30%***
	Estimated Percentage of Dwellings Exceeding the Radon Action Level					

Ground Contamination: A risk level of VERY LOW is currently determined appropriate for this development with respect to ground contamination. In summary, the site has historically been agricultural land before being developed with a residential care home during the 1970s that has now been demolished. As a result, some made ground is likely present associated with ground disturbance that could contain anthropogenic debris and pose a potential ground contamination risk to the proposed residential end users.

As the proposed development is to include new-build residential properties with private gardens it is recommended that intrusive investigations take place to determine the ground conditions and allow for samples to be collected for laboratory analysis to inform a Human Health Risk Assessment.

In addition, the developer should implement a watching brief during the redevelopment works to ensure that if visual/olfactory evidence of significant made ground or contamination is identified then works should be stopped, the Local Authority notified, and advice should be sought from an appropriately qualified and experienced Geo-Environmental Engineer.

Groundwater Contamination: Any made ground on site as well as any contaminants present are considered to have been insitu for a significant period and therefore a risk level of NEGLIGIBLE is thought appropriate for this development with respect to potential risks to controlled waters (i.e. groundwater, nearby surface water features) and adjacent sites, particularly as no potentially sensitive receptors are present within a plausible migration distance.

Ground Gas (Carbon Dioxide and Methane): A risk level of MODERATE is currently considered appropriate for the site with respect to potential harmful ground gas since there are potential sources below and within close proximity to the site (i.e., potential shallow coal workings, mine shaft and nearby areas of made ground/infilling).

Radon Gas: The site is not located within a Radon Affected Area as defined by Public Health England and the BGS, as less than 1% of properties are above the action level. Consequently, in accordance with the GSR radon protection measures are not necessary.

6.0 Conclusions & Recommendations

When considering the results of this DTS report the following can be seen:

- The development site is currently considered to represent a high to very geotechnical risk.
- The site is currently considered to pose a very low risk to the proposed end users (ground contamination).
- The site is currently considered to pose a negligible risk to adjacent sites (the surrounding environment) and controlled waters with respect to potential ground/groundwater contamination.
- A very moderate risk is currently considered appropriate with respect to ground gas.
- The site is not located within an area requiring radon protection measures.

Consequently, prior to commencing construction it is recommended that Phase 2 Ground Investigation works be completed to fully characterise the ground/groundwater conditions and ground gas regime below the development area to inform design and appropriately risk assess the site to ensure it is appropriate for its intended end use.

This could include the following:

- Geophysical survey to determine any sub-surface anomalies that could be the CA recorded mine shaft.
- Mini Percussion Boreholes (to assess ground conditions).
- Rotary Boreholes (to assess potential shallow coal mining geohazards).
- Machine excavated trial pits, to assess the ground conditions, including the mine shaft recorded by the CA.
- Ground Gas monitoring.
- Contamination sampling of made ground with Human Health Risk Assessment (proposed end users).
- Factual and interpretive reporting.

GEO also recommends that a “watching brief” and “observational technique” be applied to this site to ensure that if ground conditions appear to vary from those identified within this investigation report then advice should be sought from a suitably qualified and experienced Engineering Geologist, Geotechnical or Geo-Environmental Engineer.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders, including warranty providers in order to seek their approval of the findings prior to commencing any works on site. GEO accepts no responsibility for the accuracy of third-party information involved within the completion of this report.

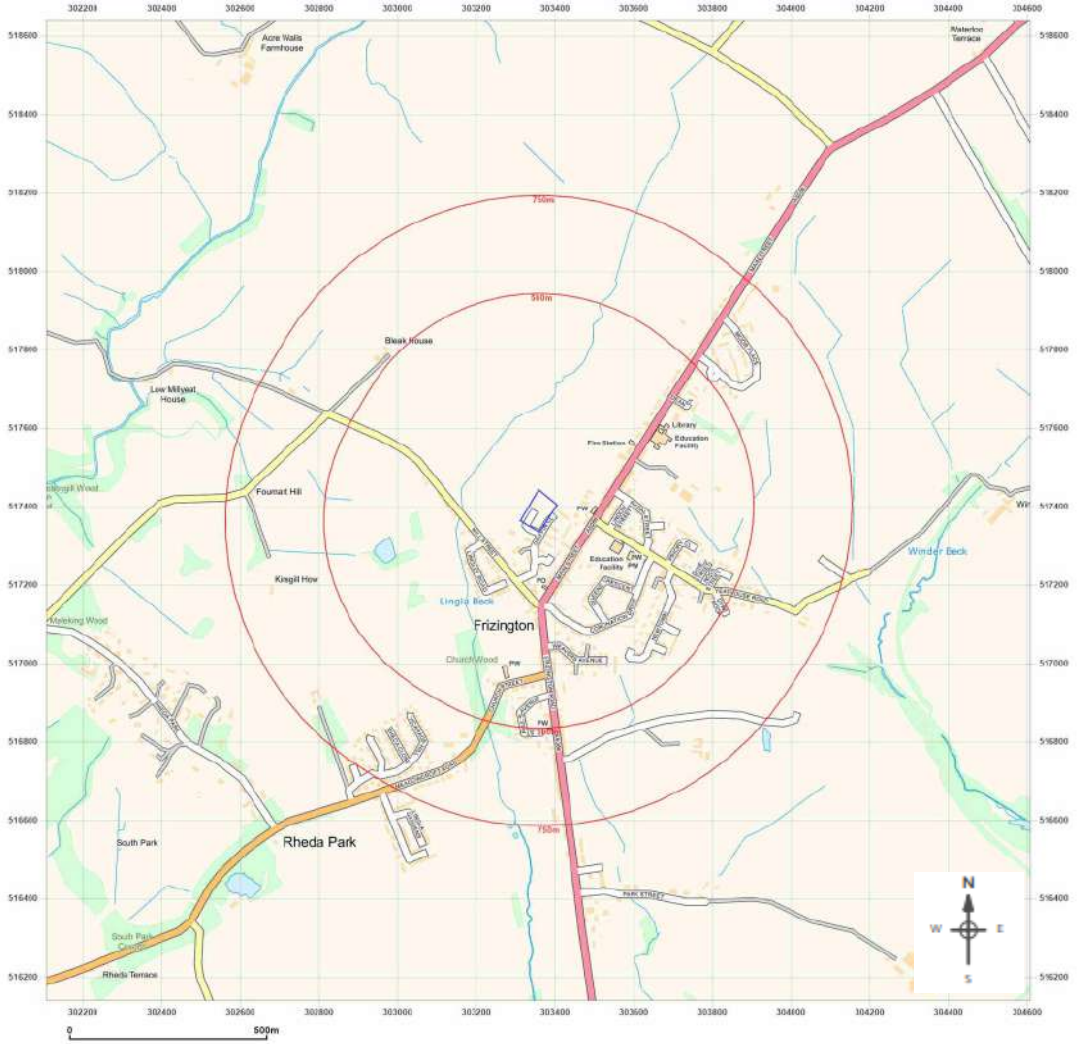
End of Report

Appendix I

- Site Location Plan
- Aerial Photograph Extract
- Existing Site Plan
- Site Images (August 2022)

GEO Environmental Engineering

GEO2022-5436: Site Location Plan (Not to Scale)



Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 07883 440 186

GEO Environmental Engineering

GEO2022-5436: Aerial Photograph Extract

Capture Date: 10/10/2018

Site Area: 0.51ha

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
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GEO Environmental Engineering

GEO2022-5436: Existing Site Plan

Site Area: 0.51ha

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 07883 440 186

GEO Environmental Engineering

GEO2022-5436: Site Images (August 2022)

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 07883 440 186

Appendix II

- Ground Sure Report (GSR)

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo
Insight

Order Details

Date: 16/08/2022

Your ref: EMS_804121_996216

Our Ref: EMS-804121_1035232

Site Details

Location: 303358 517388

Area: 0.51 ha

Authority: Copeland Borough Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	0	6	39	-
15	1.2	Historical tanks	0	1	0	2	-
16	1.3	Historical energy features	0	0	0	4	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	3	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	0	0	10	57	-
21	2.2	Historical tanks	0	1	0	2	-
21	2.3	Historical energy features	0	0	0	5	-
22	2.4	Historical petrol stations	0	0	0	0	-
22	2.5	Historical garages	0	0	4	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
23	3.1	Active or recent landfill	0	0	0	0	-
23	3.2	Historical landfill (BGS records)	0	0	0	0	-
24	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
24	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
24	3.5	Historical waste sites	0	0	0	0	-
24	3.6	Licensed waste sites	0	0	0	0	-
24	3.7	Waste exemptions	0	0	1	20	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
27	4.1	Recent industrial land uses	0	0	4	-	-
28	4.2	Current or recent petrol stations	0	0	0	0	-
28	4.3	Electricity cables	0	0	0	0	-
28	4.4	Gas pipelines	0	0	0	0	-
28	4.5	Sites determined as Contaminated Land	0	0	0	0	-

28	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
29	4.7	Regulated explosive sites	0	0	0	0	-
29	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
29	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
29	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
30	4.12	Radioactive Substance Authorisations	0	0	0	0	-
30	**4.13**	**Licensed Discharges to controlled waters**	0	0	1	0	-
30	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
30	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
31	4.17	List 2 Dangerous Substances	0	0	0	0	-
31	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	3	3	-
32	4.19	Pollution inventory substances	0	0	0	0	-
32	4.20	Pollution inventory waste transfers	0	0	0	0	-
32	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
33	**5.1**	**Superficial aquifer**	Identified (within 500m)				
35	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
37	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
38	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
38	5.5	Groundwater vulnerability- local information	None (within 0m)				
39	**5.6**	**Groundwater abstractions**	0	0	0	0	5
41	5.7	Surface water abstractions	0	0	0	0	0
41	5.8	Potable abstractions	0	0	0	0	0
41	5.9	Source Protection Zones	0	0	0	0	-
41	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
42	**6.1**	**Water Network (OS MasterMap)**	0	0	1	-	-

43	6.2	Surface water features	0	0	6	-	-
43	6.3	WFD Surface water body catchments	1	-	-	-	-
43	6.4	WFD Surface water bodies	0	0	0	-	-
44	6.5	WFD Groundwater bodies	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
45	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
45	7.2	Historical Flood Events	0	0	0	-	-
45	7.3	Flood Defences	0	0	0	-	-
46	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
46	7.5	Flood Storage Areas	0	0	0	-	-
47	7.6	Flood Zone 2	None (within 50m)				
47	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
48	8.1	Surface water flooding	Negligible (within 50m)

Page	Section	Groundwater flooding	
49	9.1	Groundwater flooding	Low (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
50	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	1
51	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
51	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
51	10.4	Special Protection Areas (SPA)	0	0	0	0	0
51	10.5	National Nature Reserves (NNR)	0	0	0	0	0
52	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
52	10.7	Designated Ancient Woodland	0	0	0	0	2
52	10.8	Biosphere Reserves	0	0	0	0	0
52	10.9	Forest Parks	0	0	0	0	0
53	10.10	Marine Conservation Zones	0	0	0	0	0
53	10.11	Green Belt	0	0	0	0	0
53	10.12	Proposed Ramsar sites	0	0	0	0	0

53	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
53	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
54	10.15	Nitrate Sensitive Areas	0	0	0	0	0
54	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
55	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
56	**10.18**	**SSSI Units**	0	0	0	0	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	11.1	World Heritage Sites	0	0	0	-	-
57	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
57	11.3	National Parks	0	0	0	-	-
57	11.4	Listed Buildings	0	0	0	-	-
58	11.5	Conservation Areas	0	0	0	-	-
58	11.6	Scheduled Ancient Monuments	0	0	0	-	-
58	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
59	**12.1**	**Agricultural Land Classification**	Grade 4 (within 250m)				
60	12.2	Open Access Land	0	0	0	-	-
60	12.3	Tree Felling Licences	0	0	0	-	-
60	**12.4**	**Environmental Stewardship Schemes**	0	1	1	-	-
61	**12.5**	**Countryside Stewardship Schemes**	0	1	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
62	**13.1**	**Priority Habitat Inventory**	0	0	1	-	-
63	13.2	Habitat Networks	0	0	0	-	-
63	13.3	Open Mosaic Habitat	0	0	0	-	-
63	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
64	**14.1**	**10k Availability**	Identified (within 500m)				
65	14.2	Artificial and made ground (10k)	0	0	0	0	-
66	14.3	Superficial geology (10k)	0	0	0	0	-

66	14.4	Landslip (10k)	0	0	0	0	-
67	14.5	Bedrock geology (10k)	0	0	0	0	-
67	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
68	**15.1**	**50k Availability**	Identified (within 500m)				
69	15.2	Artificial and made ground (50k)	0	0	0	0	-
69	15.3	Artificial ground permeability (50k)	0	0	-	-	-
70	**15.4**	**Superficial geology (50k)**	1	0	2	0	-
71	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
71	15.6	Landslip (50k)	0	0	0	0	-
71	15.7	Landslip permeability (50k)	None (within 50m)				
72	**15.8**	**Bedrock geology (50k)**	1	0	2	7	-
73	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
73	**15.10**	**Bedrock faults and other linear features (50k)**	2	1	4	6	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
75	**16.1**	**BGS Boreholes**	0	0	5	-	-
Page	Section	Natural ground subsidence					
77	**17.1**	**Shrink swell clays**	Very low (within 50m)				
78	**17.2**	**Running sands**	Very low (within 50m)				
80	**17.3**	**Compressible deposits**	Negligible (within 50m)				
81	**17.4**	**Collapsible deposits**	Very low (within 50m)				
82	**17.5**	**Landslides**	Very low (within 50m)				
83	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
85	18.1	Natural cavities	0	0	0	0	-
86	18.2	BritPits	0	0	0	0	-
86	18.3	Surface ground workings	0	0	0	-	-
86	**18.4**	**Underground workings**	0	0	0	6	19
87	18.5	Historical Mineral Planning Areas	0	0	0	0	-

87	**18.6**	**Non-coal mining**	1	1	2	4	4
89	**18.7**	**Mining cavities**	0	0	0	0	1
89	18.8	JPB mining areas	None (within 0m)				
89	**18.9**	**Coal mining**	Identified (within 0m)				
90	18.10	Brine areas	None (within 0m)				
90	18.11	Gypsum areas	None (within 0m)				
90	18.12	Tin mining	None (within 0m)				
90	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
91	**19.1**	**Radon**	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
92	**20.1**	**BGS Estimated Background Soil Chemistry**	1	1	-	-	-
92	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
92	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
93	21.1	Underground railways (London)	0	0	0	-	-
93	21.2	Underground railways (Non-London)	0	0	0	-	-
93	21.3	Railway tunnels	0	0	0	-	-
93	21.4	Historical railway and tunnel features	0	0	0	-	-
93	21.5	Royal Mail tunnels	0	0	0	-	-
94	21.6	Historical railways	0	0	0	-	-
94	21.7	Railways	0	0	0	-	-
94	21.8	Crossrail 1	0	0	0	0	-
94	21.9	Crossrail 2	0	0	0	0	-
94	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 10/10/2018

Site Area: 0.51ha

Recent site history - 2016 aerial photograph

Capture Date: 16/08/2016

Site Area: 0.51ha

Recent site history - 2008 aerial photograph

Capture Date: 05/10/2008

Site Area: 0.51ha

Recent site history - 2000 aerial photograph

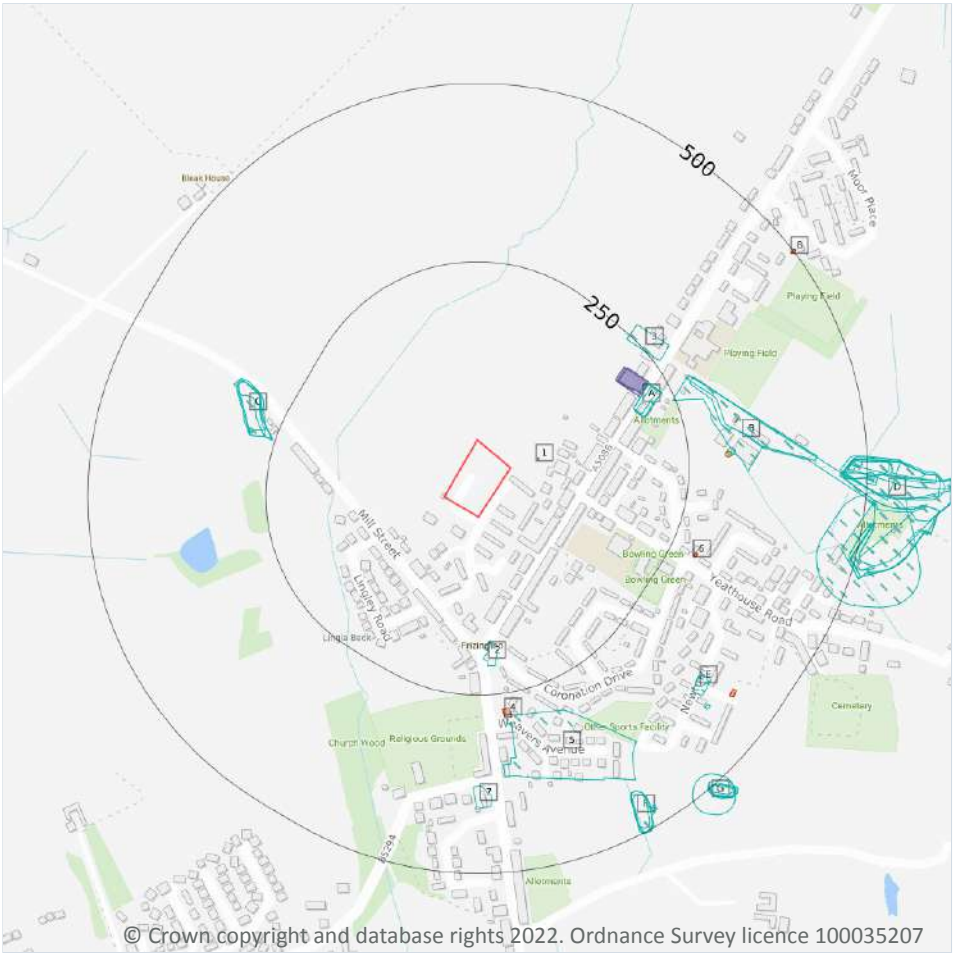
Capture Date: 16/06/2000

Site Area: 0.51ha

OS MasterMap site plan

Site Area: 0.51ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	45

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
2	175m S	Smithy	1898	580579

ID	Location	Land use	Dates present	Group ID
A	191m NE	Fire Station	1969	594727
A	191m NE	Fire Engine Station	1923 - 1951	597201
A	192m NE	Fire Station	1926	607023
3	243m NE	Fire Station	1993	576741
B	246m NE	Unspecified Commercial/Industrial	1923	597118
C	254m W	Unspecified Heap	1951	609854
C	254m W	Unspecified Heap	1938	606161
C	264m W	Unspecified Heap	1898 - 1926	625073
C	268m W	Unspecified Ground Workings	1969 - 1993	613702
5	276m S	Unspecified Factory	1969 - 1993	606341
B	277m NE	Railway Sidings	1923	619427
D	278m NE	Mineral Railway Sidings	1926	632337
B	305m E	Unspecified Tank	1993	550998
7	377m S	Police Station	1969	580952
E	381m SE	Unspecified Ground Workings	1923	608176
E	382m SE	Unspecified Heap	1898	561708
E	414m SE	Unspecified Old Shaft	1898	586883
F	443m SE	Unspecified Heap	1969	613349
F	443m SE	Unspecified Heap	1926 - 1951	618329
D	445m E	Unspecified Pit	1926	637320
F	446m SE	Unspecified Heap	1923 - 1926	618687
F	448m SE	Unspecified Heap	1898	629376
D	462m E	Disused Iron Ore Mine Pit	1951	554798
D	463m E	Iron Ore Mine Pit	1926	613107
D	463m E	Iron Ore Mine Pit	1898	622740
D	465m E	Unspecified Ground Workings	1926	592005
D	465m E	Iron Ore Mine	1926	602243
D	465m E	Iron Ore Mine Pit	1923	589805

ID	Location	Land use	Dates present	Group ID
D	467m E	Unspecified Heap	1898	627656
D	470m E	Unspecified Heap	1926	610991
D	473m E	Unspecified Ground Workings	1969	607842
D	474m E	Railway Sidings	1898	586557
F	475m SE	Unspecified Old Shafts	1898	573314
G	480m SE	Iron Ore Old Shafts	1951	639368
D	491m E	Unspecified Ground Workings	1951	610235
D	491m E	Unspecified Ground Workings	1969	613218
D	493m E	Unspecified Pit	1923 - 1926	604372
D	493m E	Unspecified Pit	1923	633992
G	493m SE	Unspecified Heap	1951	637972
G	496m SE	Unspecified Heap	1926	624004
D	499m E	Unspecified Old Shaft	1951	622527
G	499m SE	Unspecified Heap	1898	621213
G	499m SE	Unspecified Heap	1923	623679
G	500m SE	Unspecified Heap	1926	598305

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**3**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	40m E	Unspecified Tank	1864	73074
B	302m E	Unspecified Tank	1996	73076

ID	Location	Land use	Dates present	Group ID
B	321m E	Unspecified Tank	1925	73075

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	4

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
4	272m S	Electricity Substation	1981 - 1996	43199
6	285m SE	Electricity Substation	1996	42083
E	430m SE	Electricity Substation	1996	42084
8	496m NE	Electricity Substation	1996	42081

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	3

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	192m NE	Garage	1996	13960
A	192m NE	Garage	1981	13741
A	195m NE	Garage	1960 - 1965	14058

This data is sourced from Ordnance Survey / Groundsure.

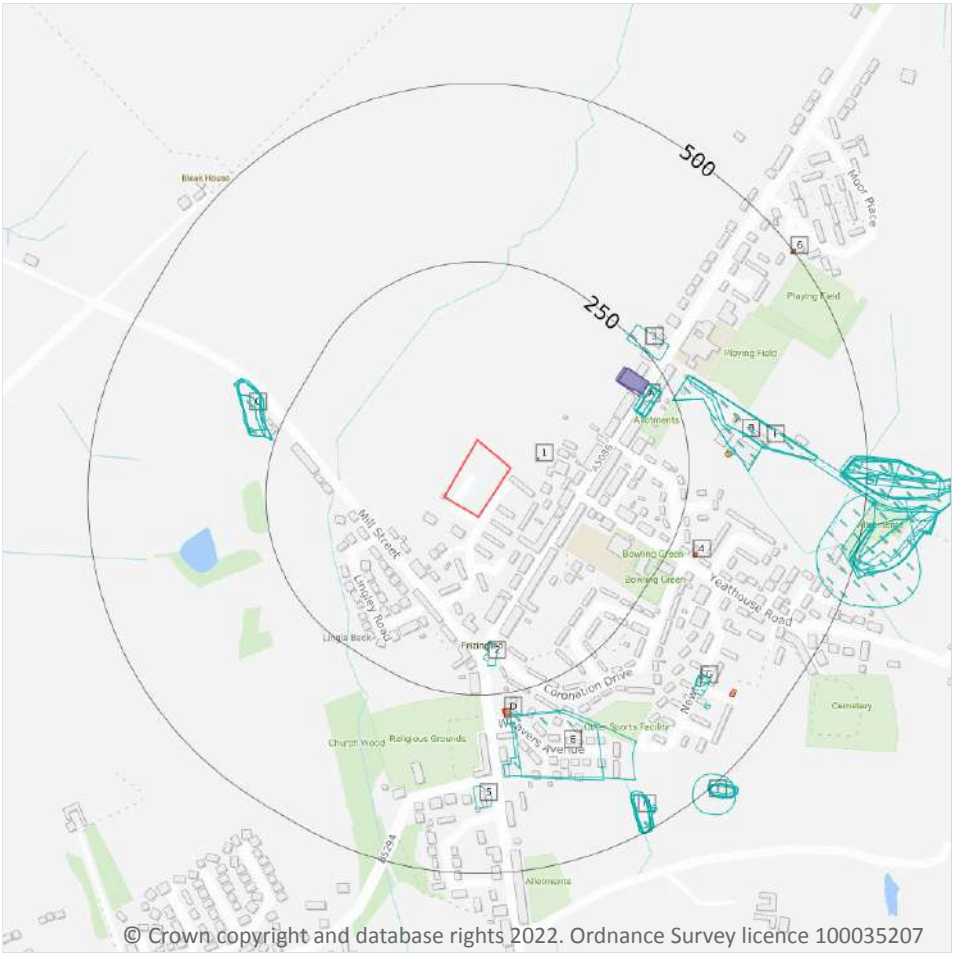
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



2.1 Historical industrial land uses

Records within 500m	67

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
2	175m S	Smithy	1898	580579
A	191m NE	Fire Engine Station	1951	597201
A	191m NE	Fire Station	1969	594727

ID	Location	Land Use	Date	Group ID
A	192m NE	Fire Station	1926	607023
A	193m NE	Fire Engine Station	1926	597201
A	195m NE	Fire Engine Station	1923	597201
A	195m NE	Fire Engine Station	1923	597201
3	243m NE	Fire Station	1993	576741
B	246m NE	Unspecified Commercial/Industrial	1923	597118
B	246m NE	Unspecified Commercial/Industrial	1923	597118
C	254m W	Unspecified Heap	1951	609854
C	254m W	Unspecified Heap	1938	606161
C	254m W	Unspecified Heap	1938	606161
C	264m W	Unspecified Heap	1926	625073
C	264m W	Unspecified Heap	1898	625073
C	268m W	Unspecified Ground Workings	1969	613702
C	268m W	Unspecified Ground Workings	1993	613702
E	276m S	Unspecified Factory	1993	606341
B	277m NE	Railway Sidings	1923	619427
B	277m NE	Railway Sidings	1923	619427
F	278m NE	Mineral Railway Sidings	1926	632337
E	279m S	Unspecified Factory	1969	606341
B	305m E	Unspecified Tank	1993	550998
5	377m S	Police Station	1969	580952
G	381m SE	Unspecified Ground Workings	1923	608176
G	381m SE	Unspecified Ground Workings	1923	608176
G	382m SE	Unspecified Heap	1898	561708
G	414m SE	Unspecified Old Shaft	1898	586883
H	443m SE	Unspecified Heap	1951	618329
H	443m SE	Unspecified Heap	1969	613349
F	445m E	Unspecified Pit	1926	637320

ID	Location	Land Use	Date	Group ID
H	446m SE	Unspecified Heap	1926	618687
H	446m SE	Unspecified Heap	1926	618687
H	447m SE	Unspecified Heap	1923	618687
H	447m SE	Unspecified Heap	1923	618687
H	448m SE	Unspecified Heap	1926	618329
H	448m SE	Unspecified Heap	1898	629376
F	462m E	Disused Iron Ore Mine Pit	1951	554798
F	463m E	Iron Ore Mine Pit	1926	613107
F	463m E	Iron Ore Mine Pit	1898	622740
F	465m E	Iron Ore Mine	1926	602243
F	465m E	Unspecified Ground Workings	1926	592005
F	465m E	Iron Ore Mine	1926	602243
F	465m E	Unspecified Ground Workings	1926	592005
F	465m E	Iron Ore Mine Pit	1923	589805
F	465m E	Iron Ore Mine Pit	1923	589805
F	466m E	Mineral Railway Sidings	1926	632337
F	467m E	Unspecified Heap	1898	627656
F	470m E	Unspecified Heap	1926	610991
F	473m E	Unspecified Ground Workings	1969	607842
F	474m E	Railway Sidings	1898	586557
H	475m SE	Unspecified Old Shafts	1898	573314
I	480m SE	Iron Ore Old Shafts	1951	639368
F	491m E	Unspecified Ground Workings	1951	610235
F	491m E	Unspecified Ground Workings	1969	613218
F	493m E	Unspecified Pit	1923	604372
F	493m E	Unspecified Pit	1923	633992
I	493m SE	Unspecified Heap	1951	637972
F	496m E	Unspecified Pit	1926	604372

ID	Location	Land Use	Date	Group ID
F	496m E	Unspecified Pit	1926	604372
I	496m SE	Unspecified Heap	1926	624004
I	496m SE	Unspecified Heap	1926	624004
F	499m E	Unspecified Old Shaft	1951	622527
I	499m SE	Unspecified Heap	1898	621213
I	499m SE	Unspecified Heap	1923	623679
I	499m SE	Unspecified Heap	1923	623679
I	500m SE	Unspecified Heap	1926	598305

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**3**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	40m E	Unspecified Tank	1864	73074
B	302m E	Unspecified Tank	1996	73076
B	321m E	Unspecified Tank	1925	73075

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**5**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
D	272m S	Electricity Substation	1981	43199
D	272m S	Electricity Substation	1996	43199
4	285m SE	Electricity Substation	1996	42083
G	430m SE	Electricity Substation	1996	42084
6	496m NE	Electricity Substation	1996	42081

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	4

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	192m NE	Garage	1996	13960
A	192m NE	Garage	1981	13741
A	195m NE	Garage	1965	14058
A	195m NE	Garage	1960	14058

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	21

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 23**

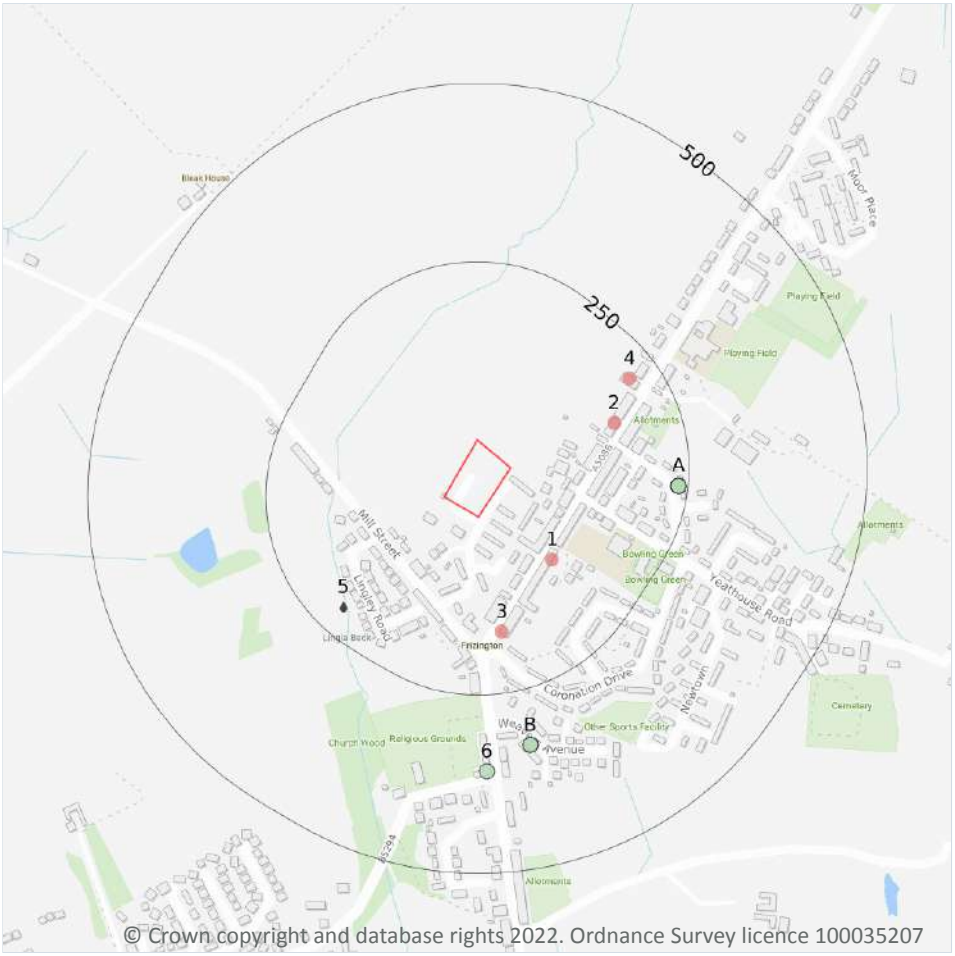
ID	Location	Site	Reference	Category	Sub-Category	Description
1	66m S	28 Griffin Close FRIZINGTON Cumbria CA26 3SH	EPR/PF0634BY /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Deposit of waste from dredging of inland waters
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Cleaning, washing, spraying or coating relevant waste
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Using waste exemption	Both agricultural and non-agricultural waste	Incorporation of ash into soil
A	336m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/PF0906CU/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Disposing of waste exemption	On a farm	Burning waste in the open
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Treating waste exemption	On a farm	Cleaning, washing, spraying or coating relevant waste
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Using waste exemption	On a farm	Use of waste in construction
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	349m E	LONSDALE FARM, MAIN STREET, FRIZINGTON, CA26 3PE	WEX070429	Using waste exemption	On a farm	Use of waste for a specified purpose

ID	Location	Site	Reference	Category	Sub-Category	Description
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Treating waste exemption	Agricultural Waste Only	Cleaning, washing, spraying or coating relevant waste
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Using waste exemption	Agricultural Waste Only	Use of waste in construction
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Using waste exemption	Agricultural Waste Only	Incorporation of ash into soil
A	360m E	Lonsdale Farm Main Street FRIZINGTON Cumbria CA26 3PE	EPR/TF0637SP /A001	Using waste exemption	Agricultural Waste Only	Use of waste for a specified purpose

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	4

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Company	Address	Activity	Category
1	119m SE	A Stephen Burns	151, Main Street, Frizington, Cumbria, CA26 3SB	Metalworkers Including Blacksmiths	Construction Services
2	158m NE	Kks Body Repairs	53, Main Street, Frizington, Cumbria, CA26 3PE	Vehicle Repair, Testing and Servicing	Repair and Servicing
3	164m S	The Muffin Top	176, Main Street, Frizington, Cumbria, CA26 3SB	Baking and Confectionery	Foodstuffs

ID	Location	Company	Address	Activity	Category
4	209m NE	Frizington Fire Station	Frizington Motors, Main Street, Frizington, Cumbria, CA26 3PE	Fire Brigade Stations	Central and Local Government

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	1

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Address	Details	
5	209m SW	MILL ST, FRIZINGTON, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0029 Permit Version: 1 Receiving Water: LINGRA BECK	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: - Effective Date: 01/01/1995 Revocation Date: 31/01/2003

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	6

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 27**

ID	Location	Details	
A	236m E	Incident Date: 15/03/2005 Incident Identification: 299157 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke :Soot/Smuts	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 2 (Significant)
A	236m E	Incident Date: 15/03/2005 Incident Identification: 299157 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 2 (Significant)
A	236m E	Incident Date: 15/03/2005 Incident Identification: 299157 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Soot/Smuts	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 2 (Significant)
B	328m S	Incident Date: 06/05/2005 Incident Identification: 310972 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 2 (Significant)

ID	Location	Details	
B	328m S	Incident Date: 06/05/2005 Incident Identification: 310972 Pollutant: Specific Waste Materials Pollutant Description: Asbestos	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 2 (Significant)
6	357m S	Incident Date: 27/07/2001 Incident Identification: 19590 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

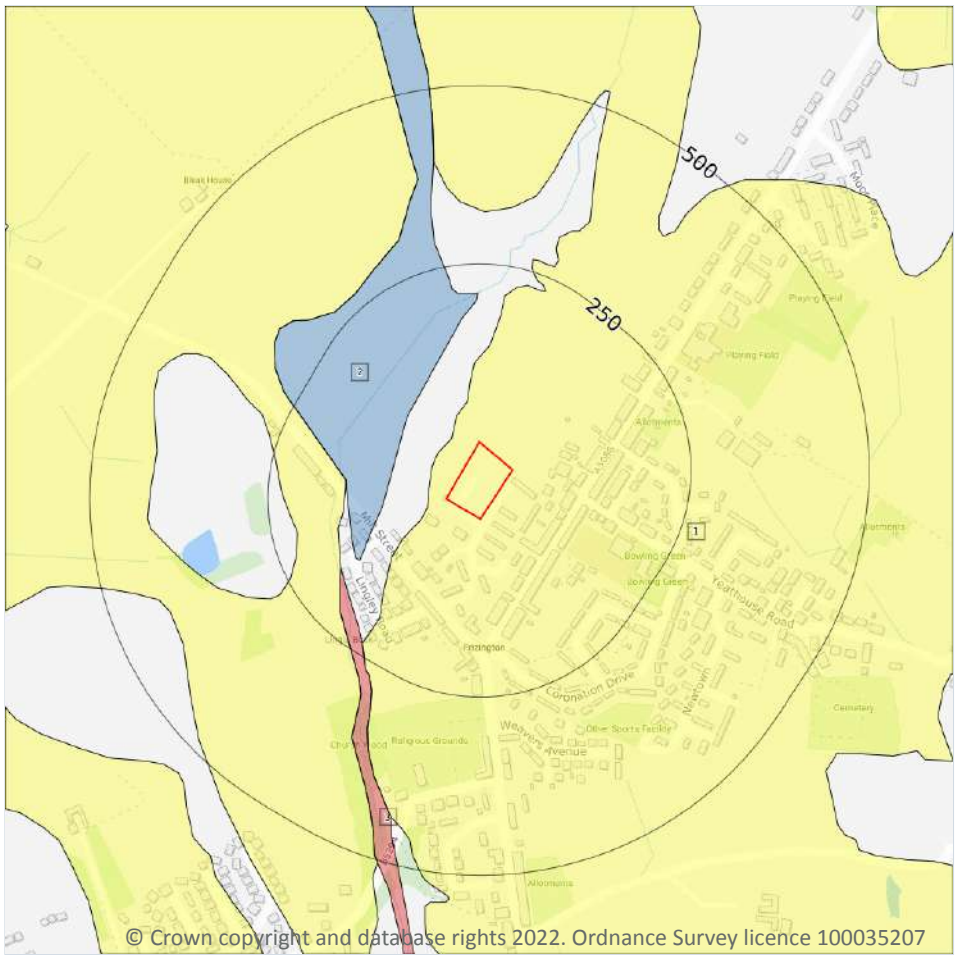
4.21 Pollution inventory radioactive waste

Records within 500m	**0**

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

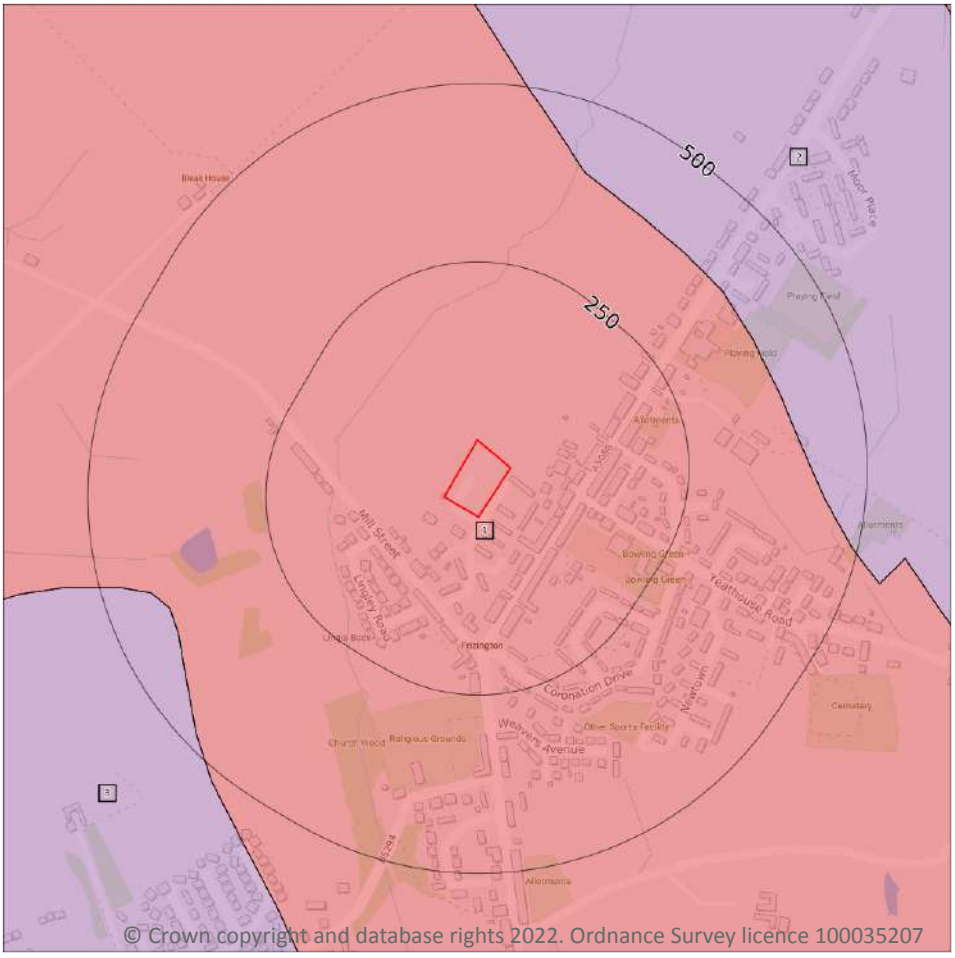
Features are displayed on the Hydrogeology map on **page 33**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	83m W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

ID	Location	Designation	Description
3	178m SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	3

Aquifer status of groundwater held within bedrock geology.

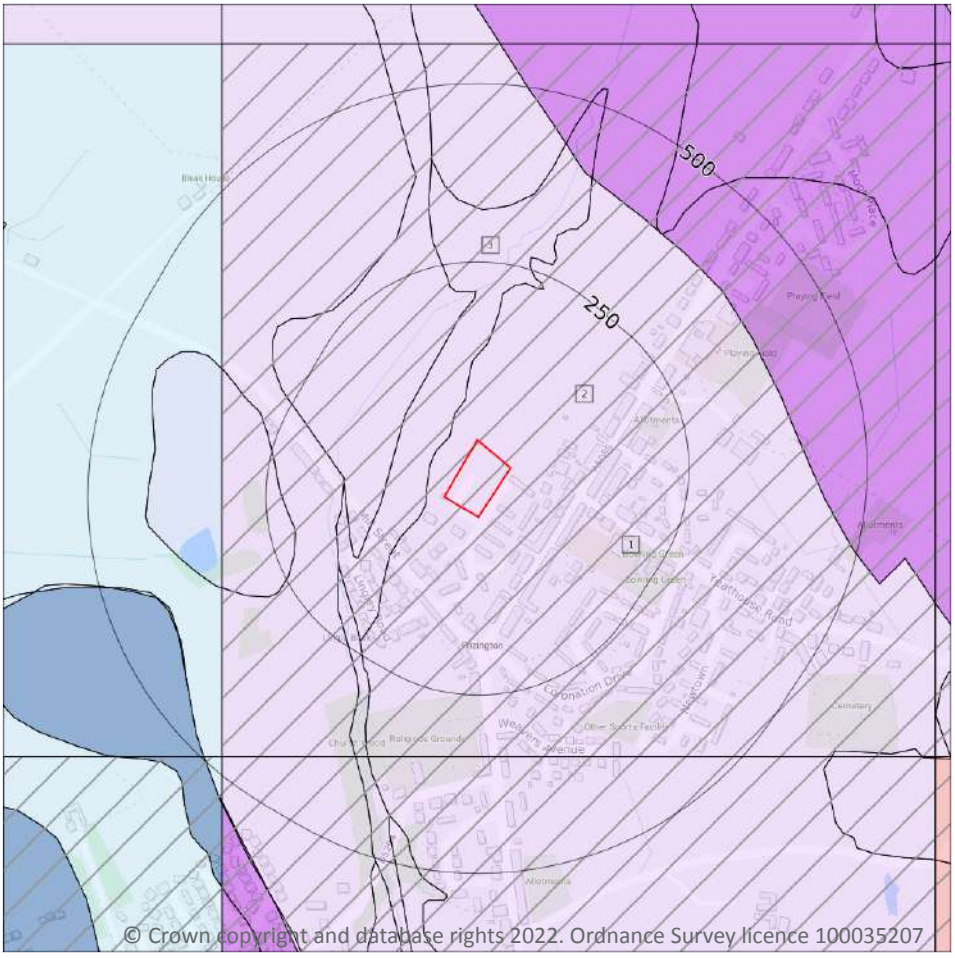
Features are displayed on the Bedrock aquifer map on **page 35**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	384m NE	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Location	Designation	Description
3	415m W	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 37**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High**	**Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures**
3	25m W	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**1**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**4.0%**

This data is sourced from the British Geological Survey and the Environment Agency.

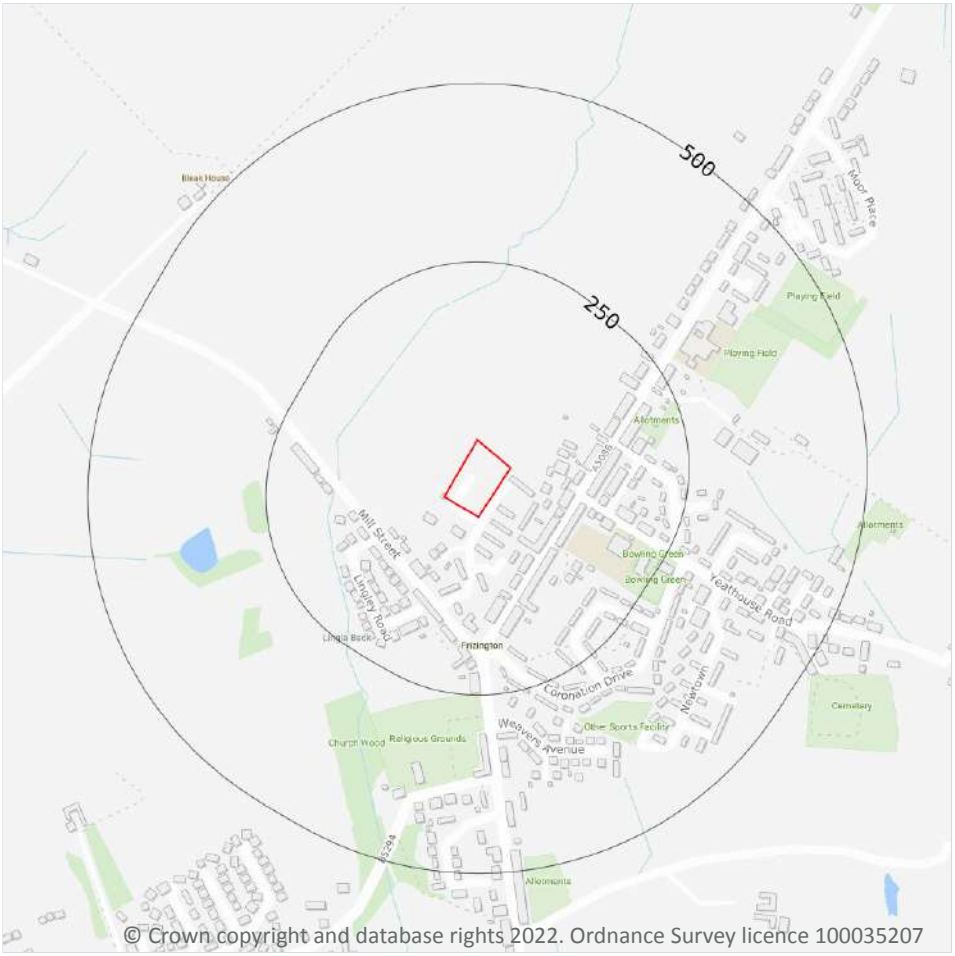
5.5 Groundwater vulnerability- local information

Records on site	**0**

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	5

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 39**

ID	Location	Details	
-	1401m SW	Status: Historical Licence No: 2774004002 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: "WELL AT BIRKS FARM, CLEATOR MOOR, CUMBRIA" Data Type: Point Name: J CHARLTON & SONS Easting: 302700 Northing: 516100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1965 Version End Date: -
-	1401m SW	Status: Historical Licence No: 2774004002 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: WELL AT BIRKS FARM, CLEATOR MOOR, CUMBRIA Data Type: Point Name: J CHARLTON & SONS Easting: 302700 Northing: 516100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1965 Version End Date: -
-	1681m NE	Status: Historical Licence No: 2774004004 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: "WELL AT ARLECDON,FRIZINGTON, CUMBRIA" Data Type: Point Name: NOLAN Easting: 304200 Northing: 518900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1965 Version End Date: -
-	1681m NE	Status: Historical Licence No: 2774004004 Details: General Farming & Domestic Direct Source: Ground Water - North West Region Point: WELL AT ARLECDON,FRIZINGTON, CUMBRIA Data Type: Point Name: NOLAN Easting: 304200 Northing: 518900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 16/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1965 Version End Date: -
-	1880m E	Status: Active Licence No: NW/074/0003/003 Details: Dewatering Direct Source: Ground Water - North West Region Point: 'ABSTRACTION AREA' AT ESKETT QUARRY, FRIZINGTON Data Type: Poly4 Name: Tendley Quarries Limited Easting: 305194 Northing: 516826	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: NPS/NA/000359 Original Start Date: 02/09/2021 Expiry Date: 31/03/2038 Issue No: 1 Version Start Date: 02/09/2021 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**1**

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type of water feature	Ground level	Permanence	Name
3	148m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Lingla Beck

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	6

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 42**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River**	**Ehen (upper including Liza)**	**GB112074070010**	**Ehen-Calder**	**South West Lakes**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2066m SE	River	Ehen (upper including Liza)	GB112074070010	Moderate	Fail	Good	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 42**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**Derwent and West Cumbria Lower Palaeozoic and Carboniferous Aquifers**	**GB41202G103700**	**Poor**	**Poor**	**Good**	**2019**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding

8.1 Surface water flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

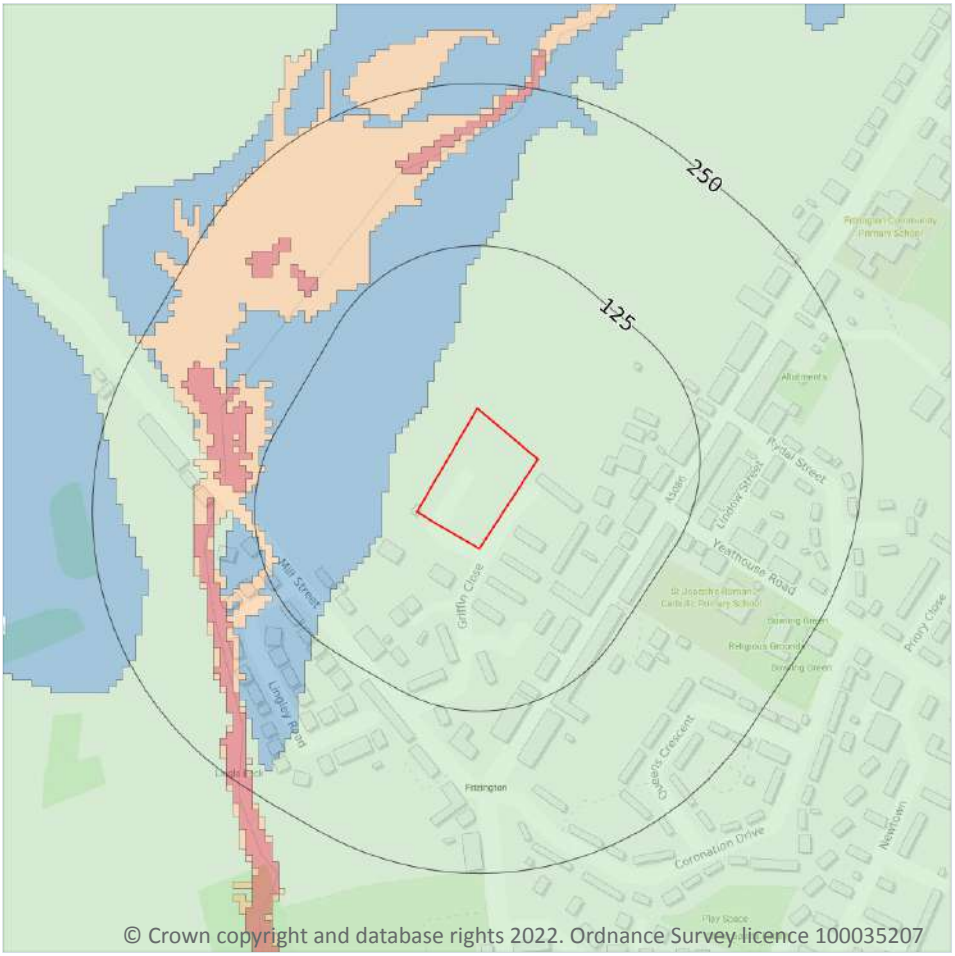
Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

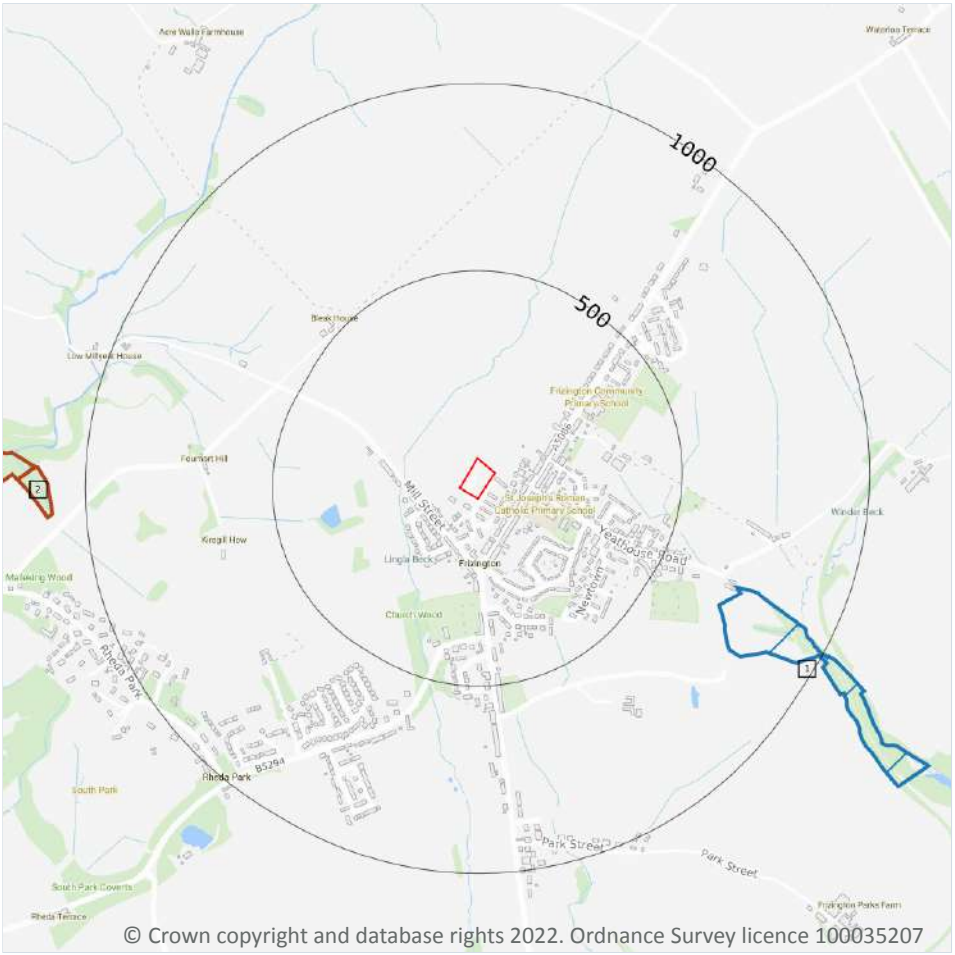
Highest risk on site	**Low**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 49**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	1

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 50**

ID	Location	Name	Data source
1	695m SE	Yeathouse Quarry	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	2

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 50**

ID	Location	Name	Woodland Type
2	1090m W	Unknown	Ancient Replanted Woodland
3	1135m W	Unknown	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or ‘classified’) under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

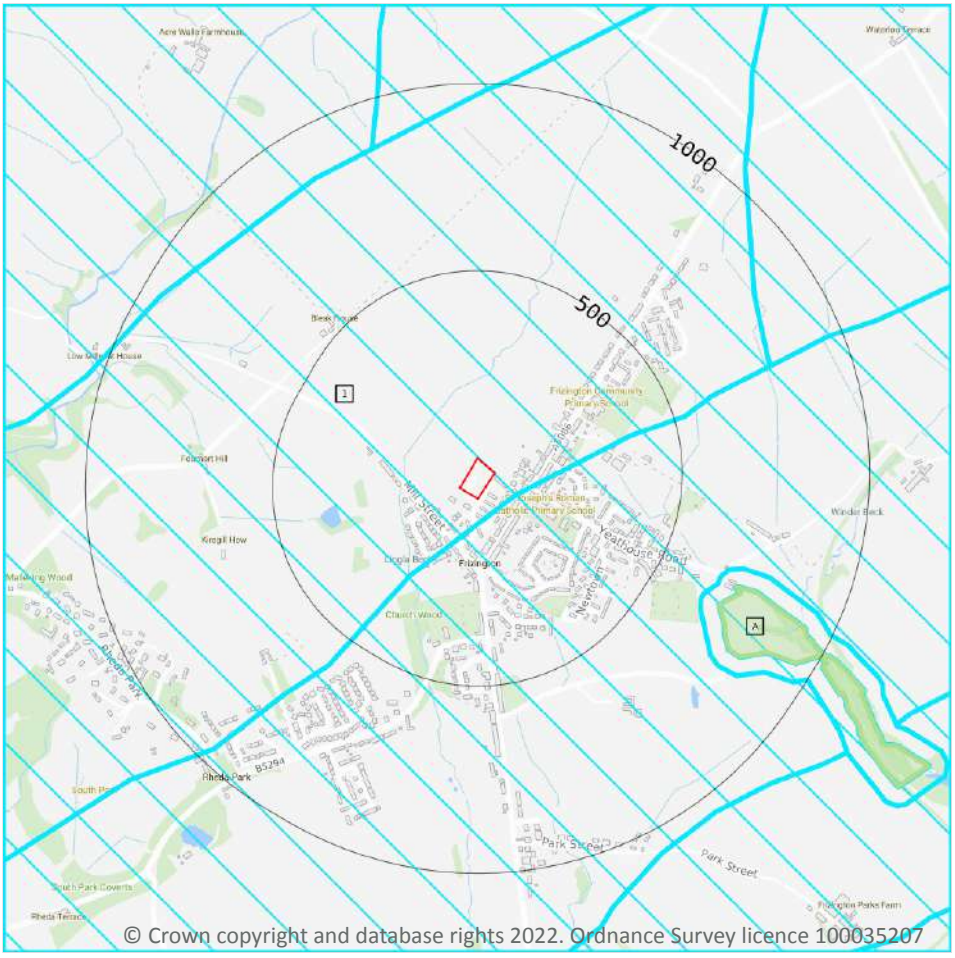
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 55**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t). Combustion - General combustion processes >50mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**1**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 55**

ID: A
Location: 695m SE
SSSI name: Yeathouse Quarry
Unit name: 1
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Dinantian	Favourable	15/05/2012

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

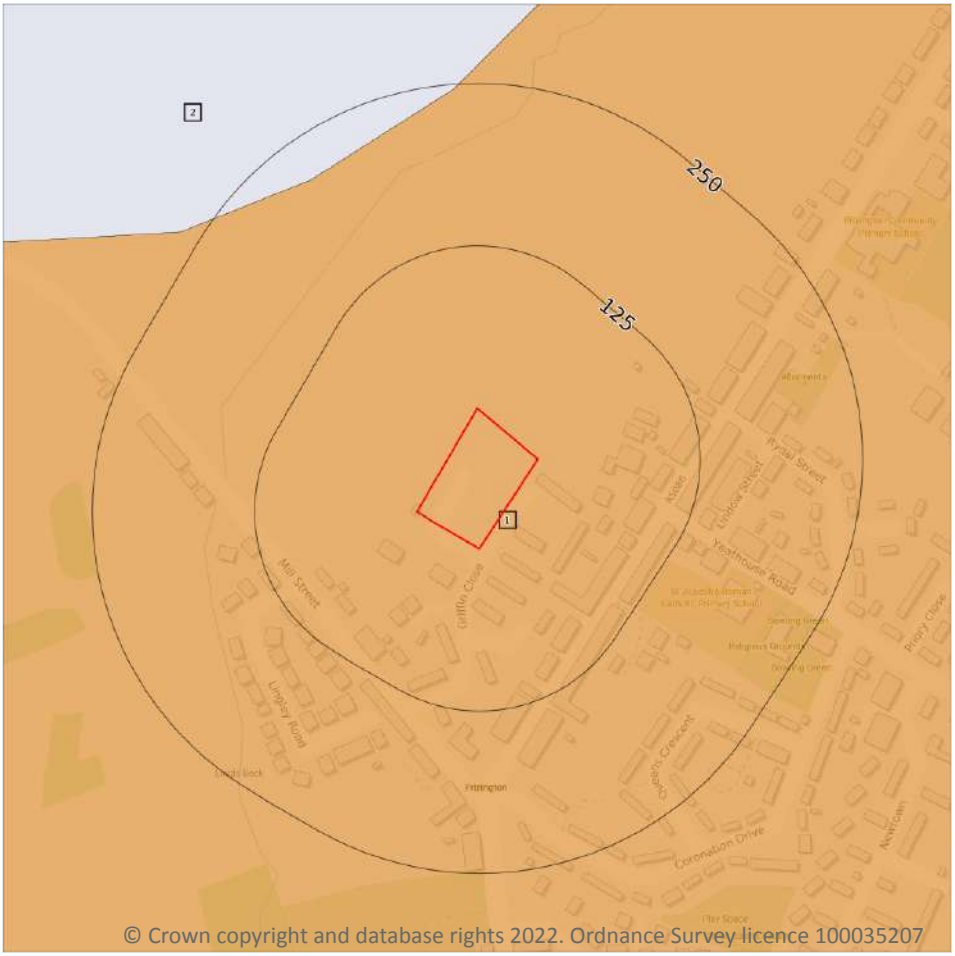
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 59**

ID	Location	Classification	Description
1	**On site**	**Grade 3**	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**

ID	Location	Classification	Description
2	217m NW	Grade 4	Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	2

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
9m NW	AG00464332	Entry Level Stewardship	01/05/2013	30/04/2018
219m N	AG00502131	Entry Level plus Higher Level Stewardship	01/05/2014	30/04/2024

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

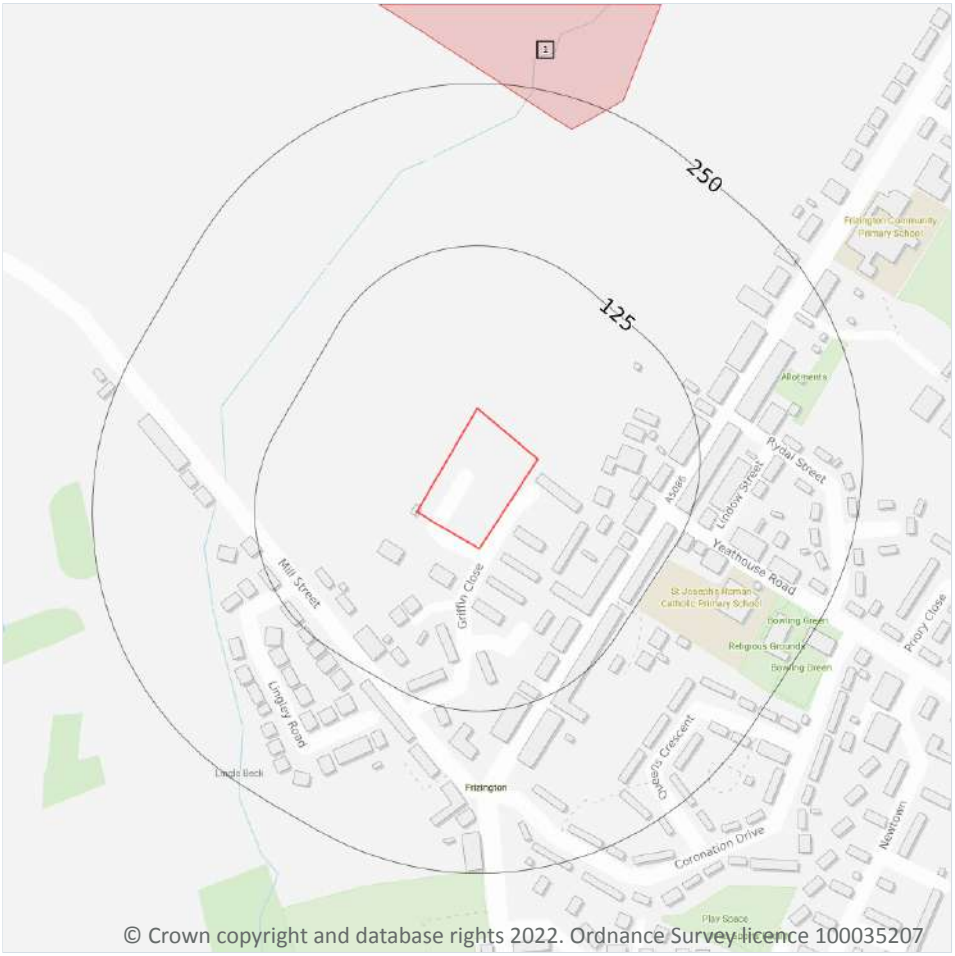
Records within 250m	**1**

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
9m N	825837	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	1

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 62**

ID	Location	Main Habitat	Other habitats
1	227m N	No main habitat but additional habitats present	Additional: PMGRP (FEP 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

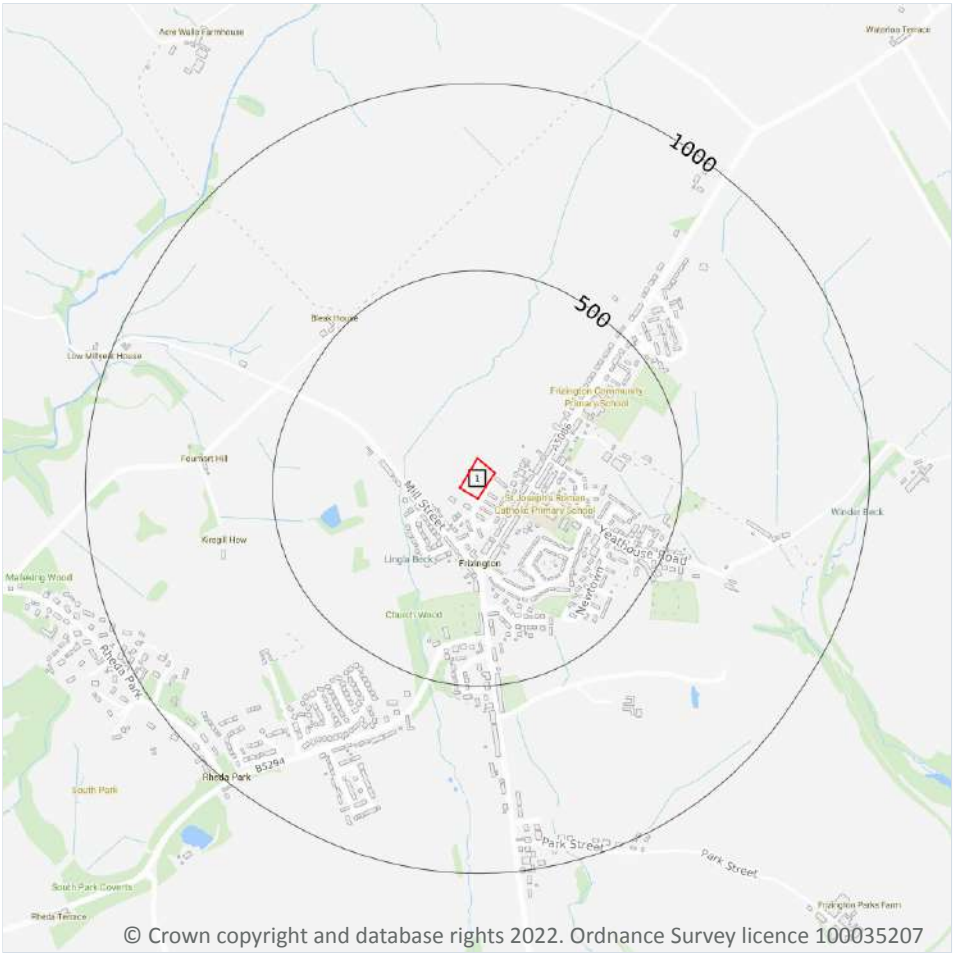
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 64**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**No coverage**	**No coverage**	**No coverage**	**NoCov**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

This data is sourced from the British Geological Survey.

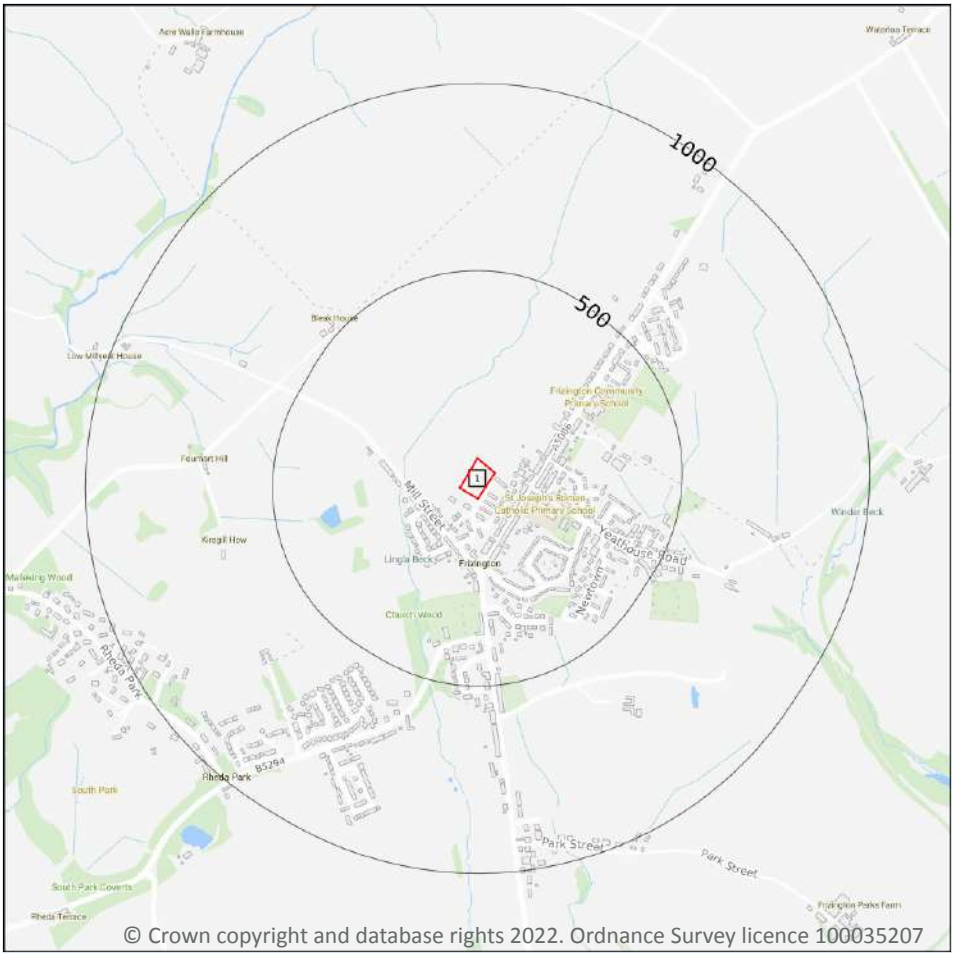
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 68**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW028_whitehaven_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

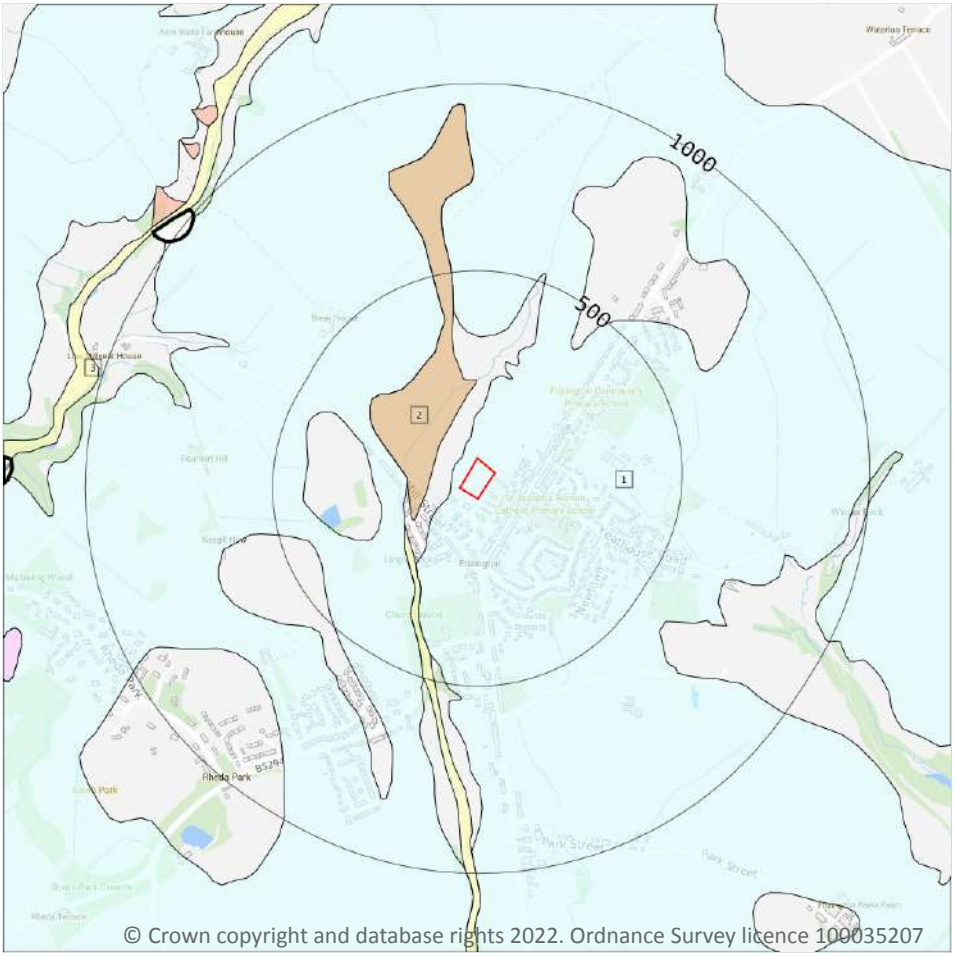
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **3**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 70**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	83m W	PEAT-P	PEAT	PEAT
3	178m SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

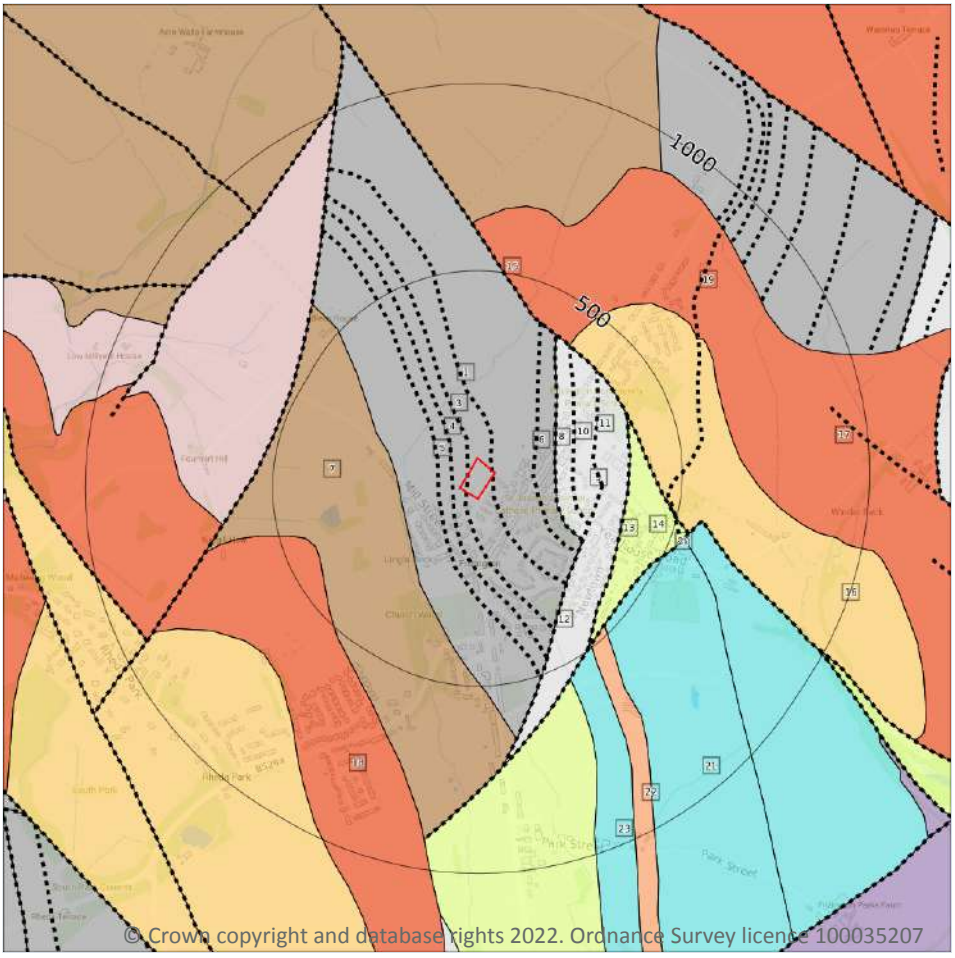
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m **10**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 72**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-MDSS**	**PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
7	160m W	WS-SDST	WHITEHAVEN SANDSTONE FORMATION - SANDSTONE	WESTPHALIAN
9	161m E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
14	357m E	SMGP-MDSS	STAINMORE FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	NAMURIAN
16	384m NE	SBS-SDST	ST BEES SANDSTONE MEMBER - SANDSTONE	-
17	388m NE	BK-BREC	BROCKRAM - BRECCIA	-
18	415m W	BK-BREC	BROCKRAM - BRECCIA	-
21	470m SE	ESKT-LMST	ESKETT LIMESTONE FORMATION - LIMESTONE	VISEAN
22	477m SE	OBS-SDST	OREBANK SANDSTONE - SANDSTONE	VISEAN
23	492m SE	ESKT-LMST	ESKETT LIMESTONE FORMATION - LIMESTONE	VISEAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**13**

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

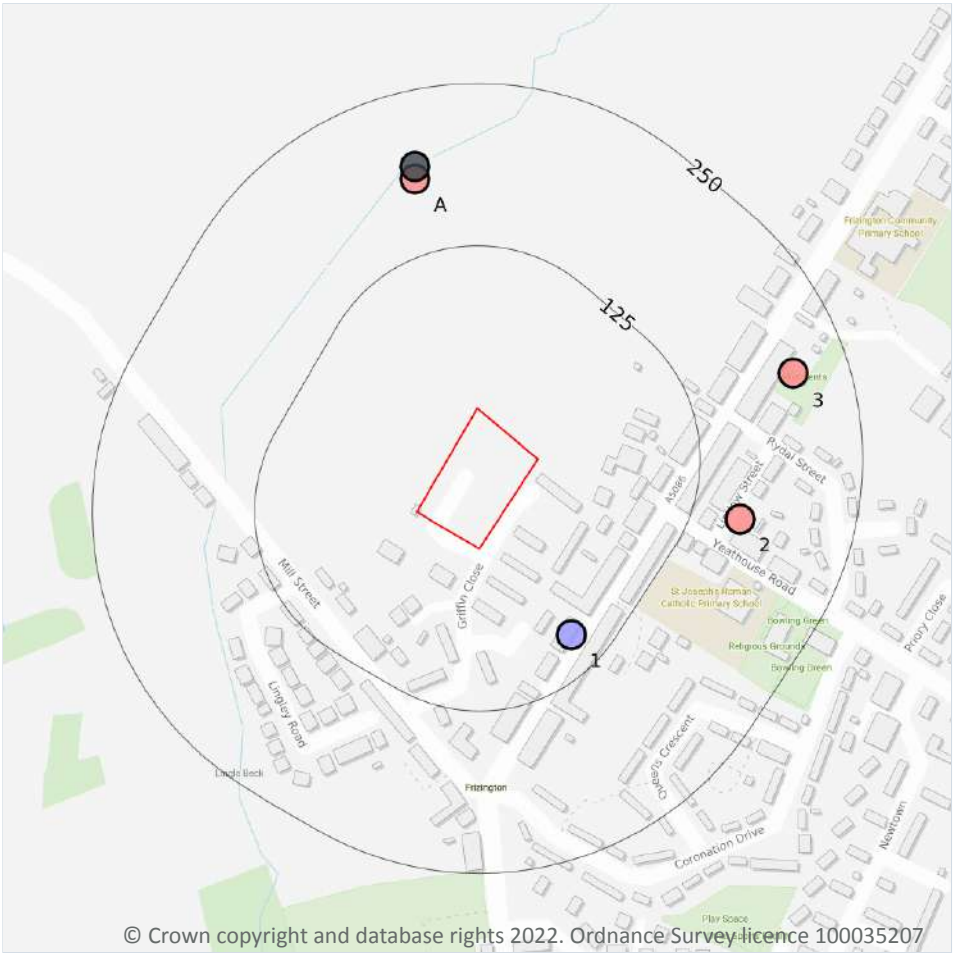
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 72**

ID	Location	Category	Description
2	**On site**	**ROCK**	**Coal seam, inferred**
3	**On site**	**ROCK**	**Coal seam, inferred**
4	20m W	ROCK	Coal seam, inferred
5	58m W	ROCK	Coal seam, inferred

ID	Location	Category	Description
6	103m E	ROCK	Coal seam, inferred
8	161m E	FOSSIL_HORIZON	Marine band
10	208m E	ROCK	Coal seam, inferred
11	263m E	ROCK	Coal seam, inferred
12	283m E	FAULT	Fault, inferred, displacement unknown
13	357m E	FAULT	Fault, inferred, displacement unknown
15	384m NE	FAULT	Fault, inferred, displacement unknown
19	466m E	LANDFORM	Glacial meltwater channel centre line, undifferentiated
20	470m SE	FAULT	Fault, inferred, displacement unknown

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	5

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

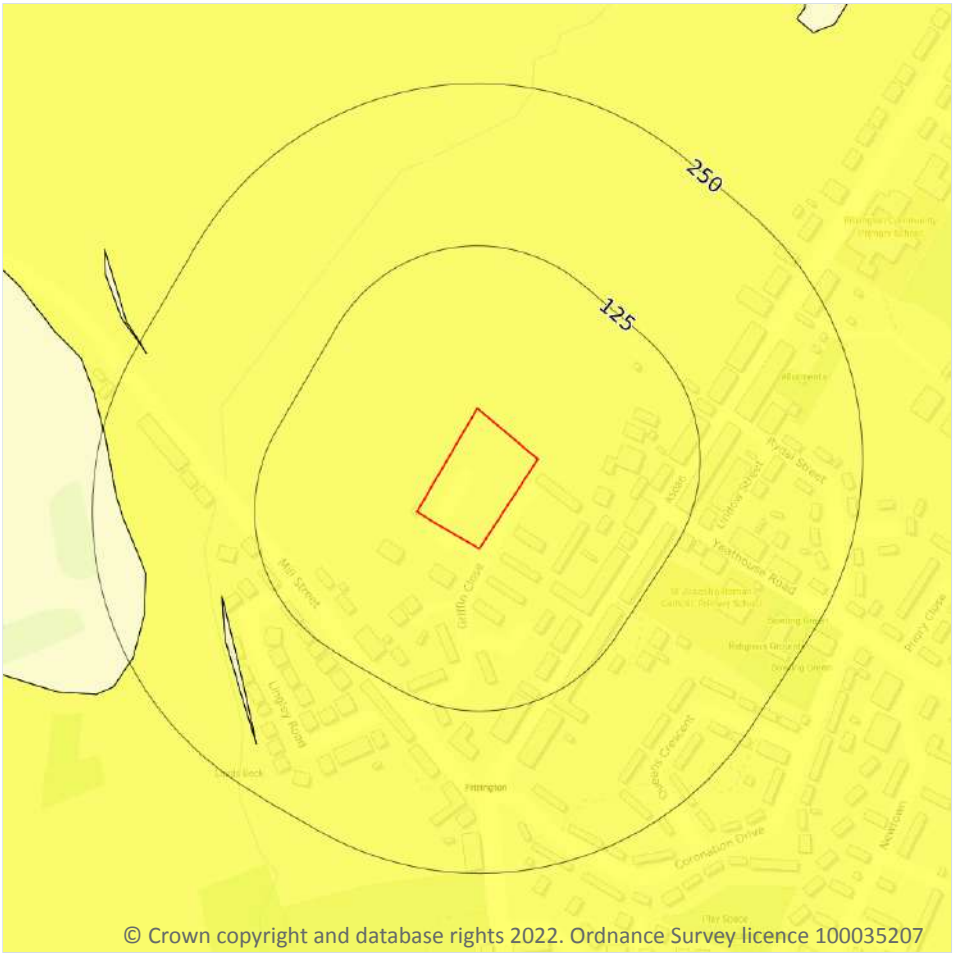
Features are displayed on the Boreholes map on **page 75**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	97m SE	303430 517270	A5086 MAIN STREET FRIZINGTON TP1-3	1.5	N	838057
2	162m E	303560 517359	LONSDALE 19	278.0	N	837711
A	183m N	303310 517621	MORESBY COAL CO. STEEL BANK	104.72	N	837876

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	192m N	303310 517630	CROSSLACON	-	Y	N/A
3	207m E	303601 517471	LONSDALE 18	259.0	N	837710

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

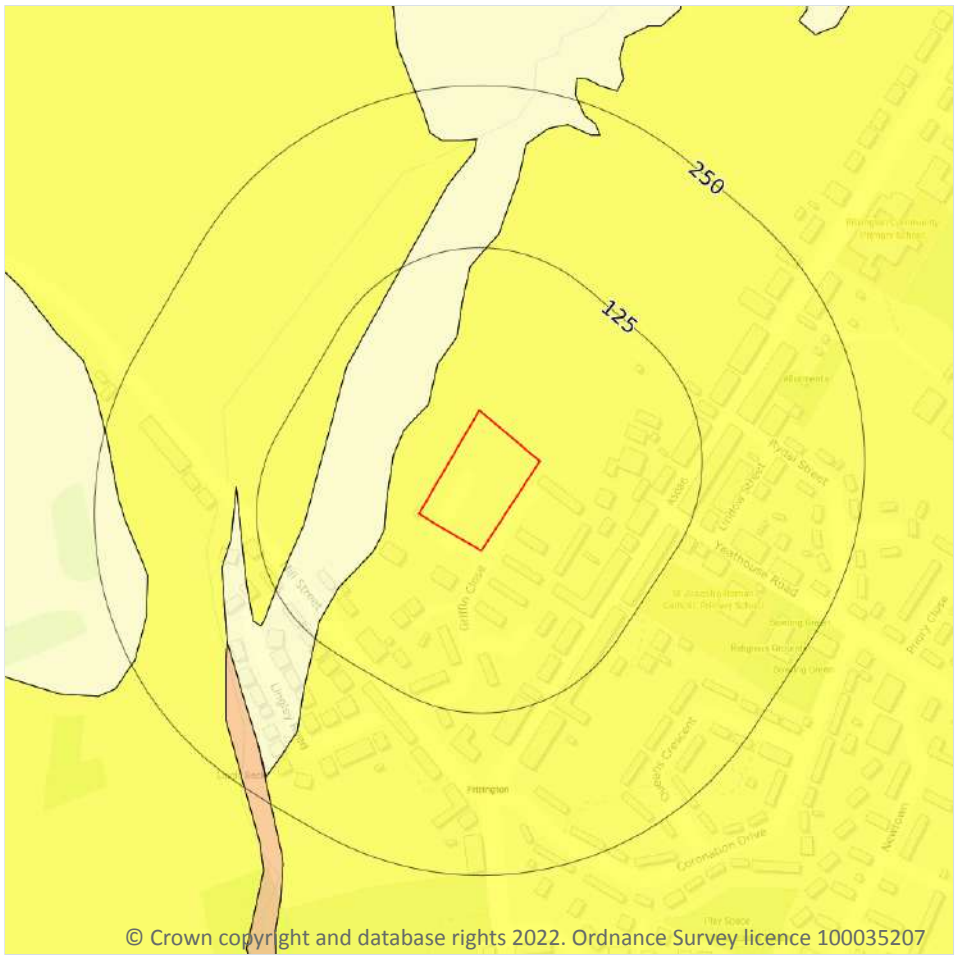
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 77**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

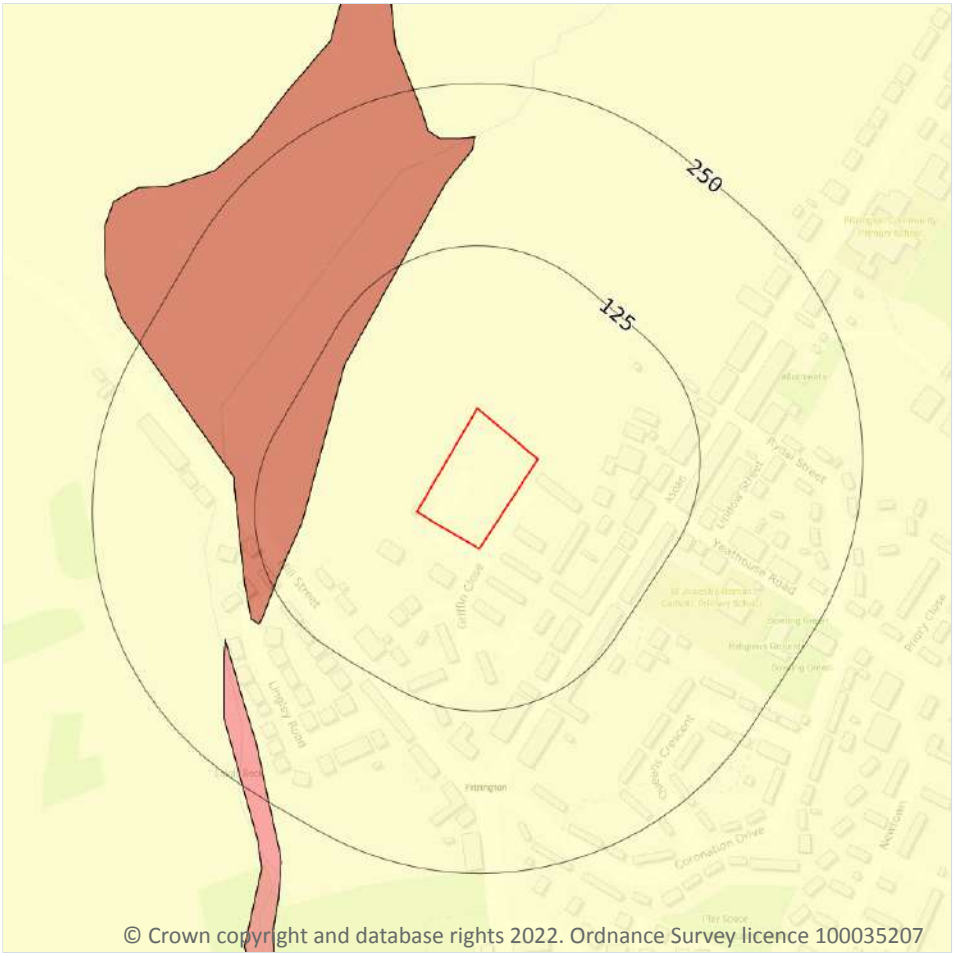
Features are displayed on the Natural ground subsidence - Running sands map on **page 78**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
26m W	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

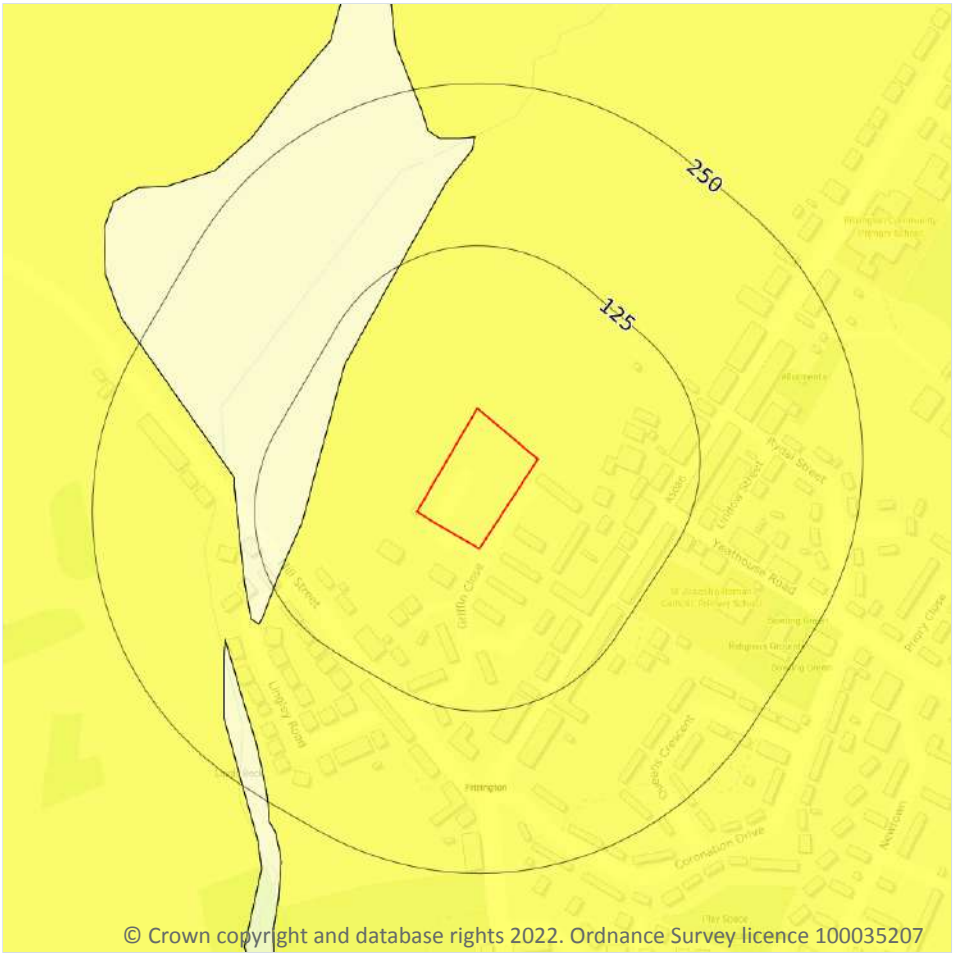
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 80**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

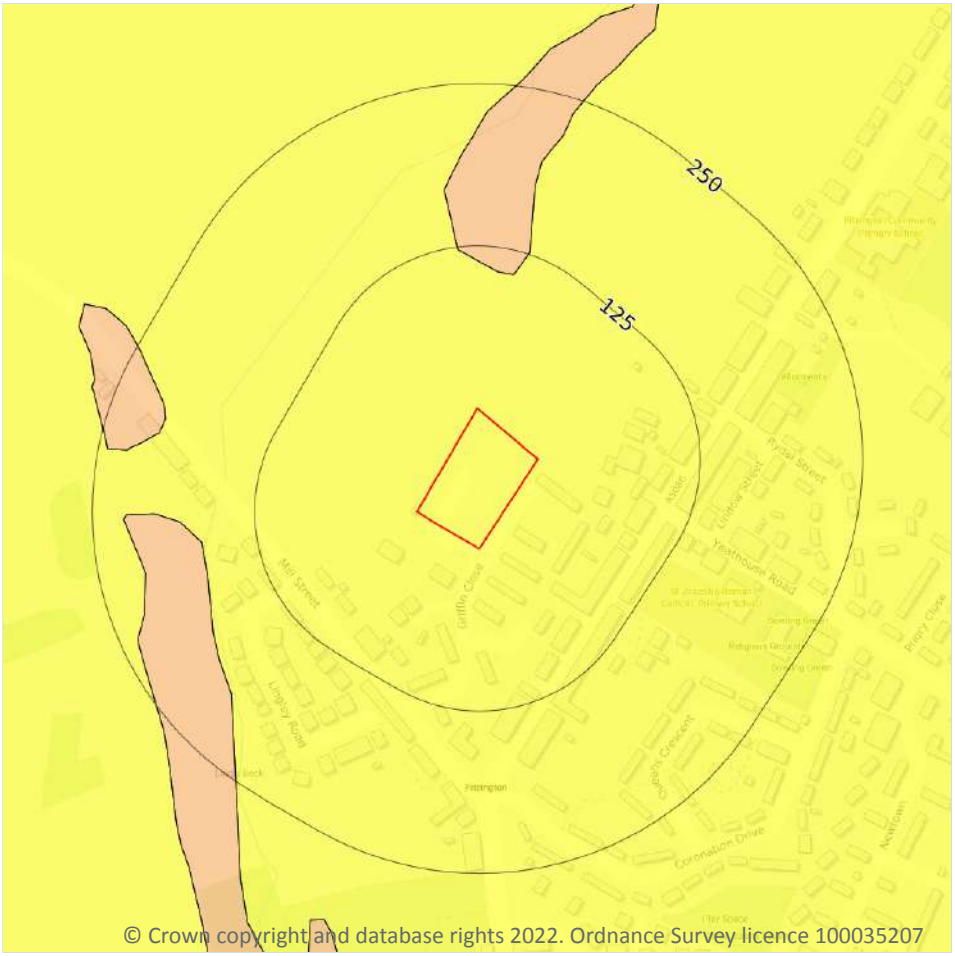
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 81**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

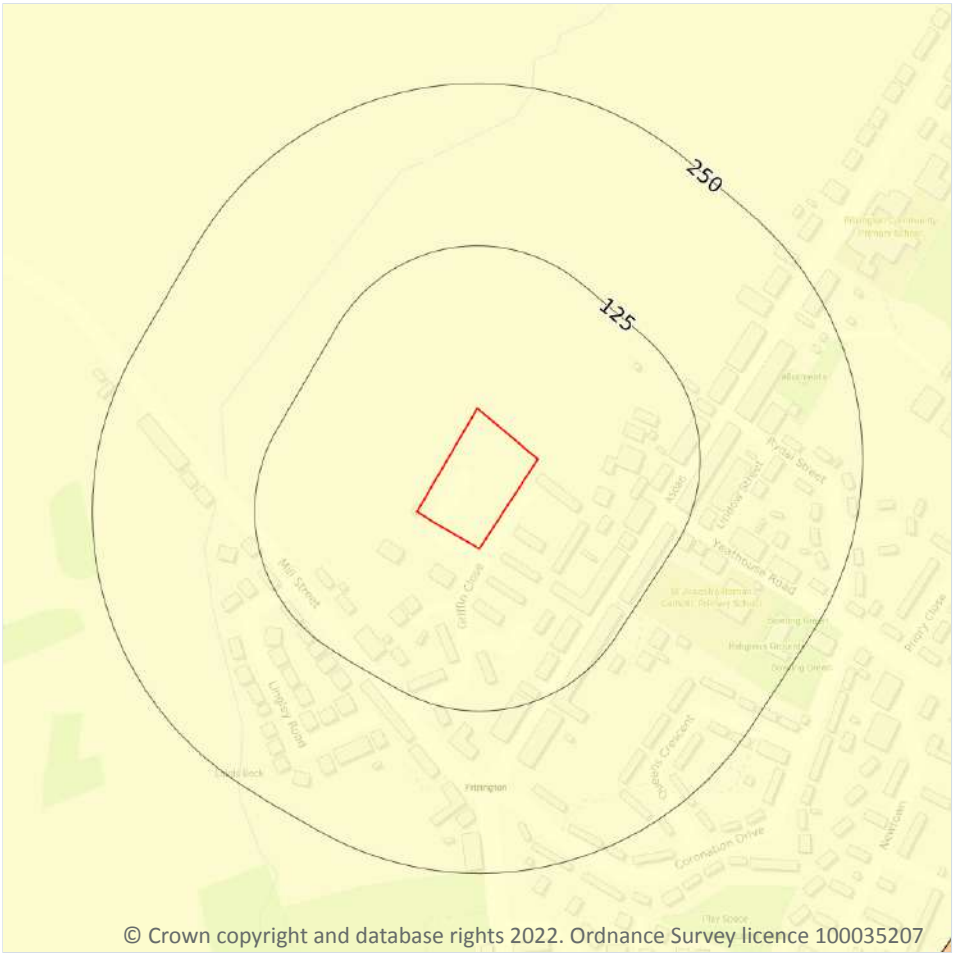
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 82**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

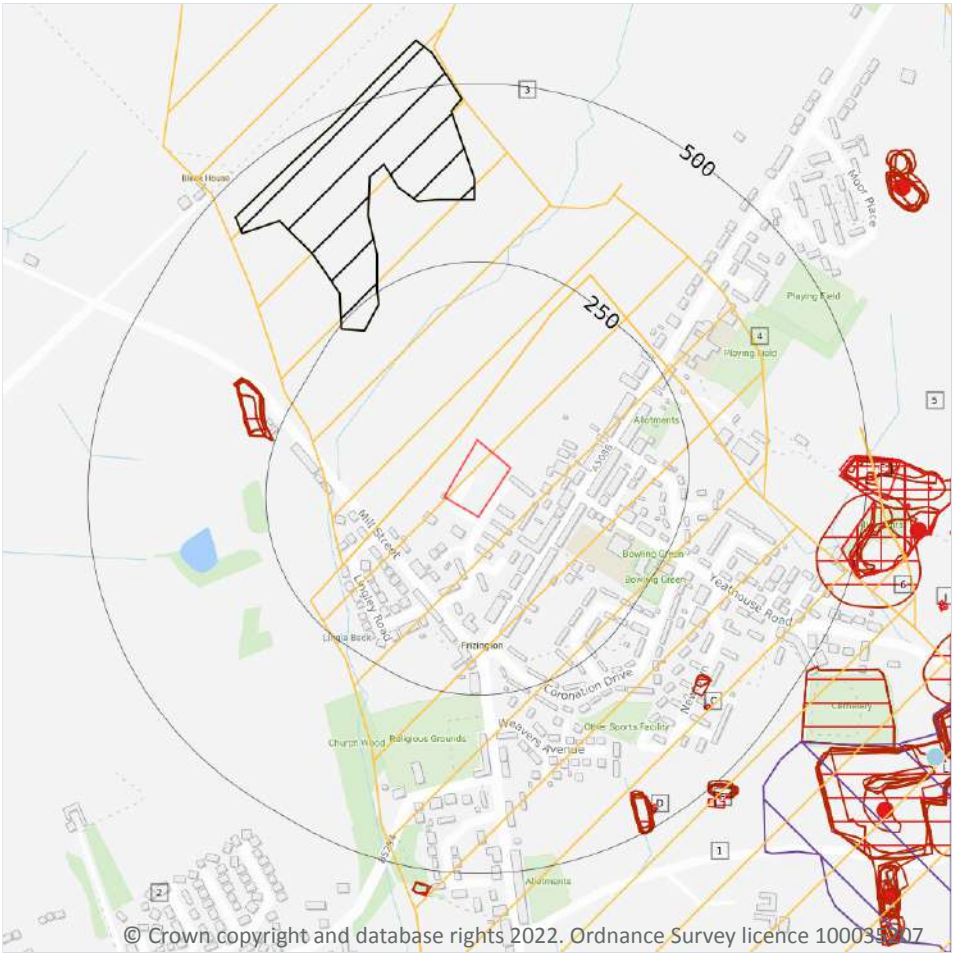
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 83**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	0

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	25

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 85**

ID	Location	Land Use	Year of mapping	Mapping scale
C	414m SE	Unspecified Old Shaft	1898	1:10560
E	462m E	Disused Iron Ore Mine Pit	1951	1:10560
E	463m E	Iron Ore Mine Pit	1926	1:10560
E	463m E	Iron Ore Mine Pit	1898	1:10560
D	475m SE	Unspecified Old ShaftS	1898	1:10560
E	499m E	Unspecified Old Shaft	1951	1:10560
E	507m E	Unspecified Old Shaft	1926	1:10560
F	511m SE	Iron Ore Old Shafts	1926	1:10560
E	558m E	Iron Shafts	1863	1:10560
E	587m E	Iron Shafts	1863	1:10560
E	624m E	Iron Shafts	1863	1:10560
J	631m E	Iron Ore Old Shaft	1951	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
J	632m E	Unspecified Old Shaft	1898	1:10560
J	634m E	Iron Ore Old Shaft	1926	1:10560
-	849m SE	Disused Iron Ore Mine Pit	1926	1:10560
-	857m E	Old Iron Shaft	1863	1:10560
-	861m S	Iron Ore Mine Pit	1898	1:10560
-	864m S	Old Iron Shaft	1863	1:10560
-	909m SE	Unspecified Old Shafts	1951	1:10560
-	910m W	Iron Shaft	1863	1:10560
-	914m SE	Unspecified Old Shafts	1926	1:10560
-	955m E	Iron Ore Old Shaft	1951	1:10560
-	956m S	Iron Shaft	1863	1:10560
-	957m E	Unspecified Old Shaft	1898	1:10560
-	958m E	Iron Ore Old Shaft	1926	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	**12**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining, ground workings and natural cavities map on **page 85**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Iron Ore (Non Vein)**	**B**	**Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered**
A	24m NW	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
A	220m NW	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
2	237m SW	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
3	344m N	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
4	384m NE	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
5	452m E	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
E	495m E	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
6	536m E	Not available	Vein Mineral\Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	737m E	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

ID	Location	Name	Commodity	Class	Likelihood
10	842m NE	Not available	Iron Ore (Bedded)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	881m SE	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	**1**

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

Features are displayed on the Mining, ground workings and natural cavities map on **page 85**

ID	Location	Mine Address	Mineral	Data source	Publisher
L	720m SE	Yeathouse Mine, Cumbria	Hematite	CATALOGUE OF MINING INFORMATION (OTHER THAN COAL, FIRECLAY & SLATE) FOR THE L.D	BGS

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	**0**

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	**1**

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	**0**

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	**0**

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	**0**

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

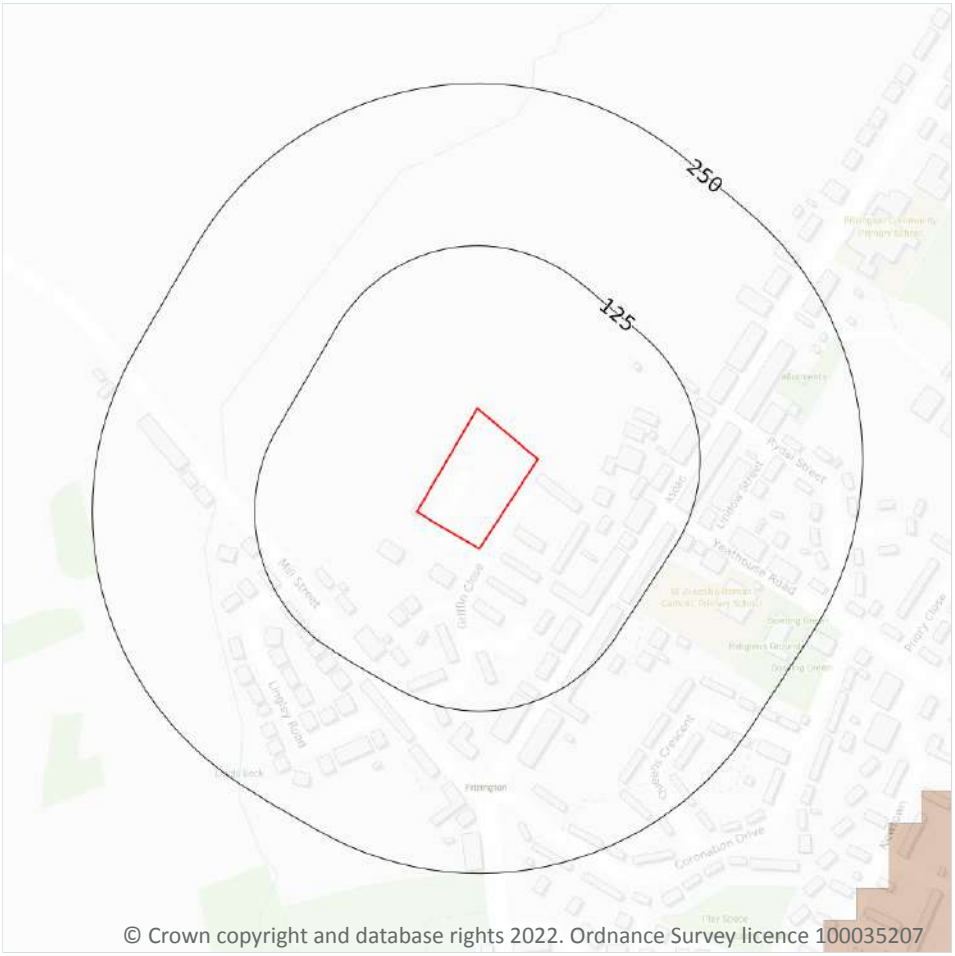
18.13 Clay mining

Records on site	**0**

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 91**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
26m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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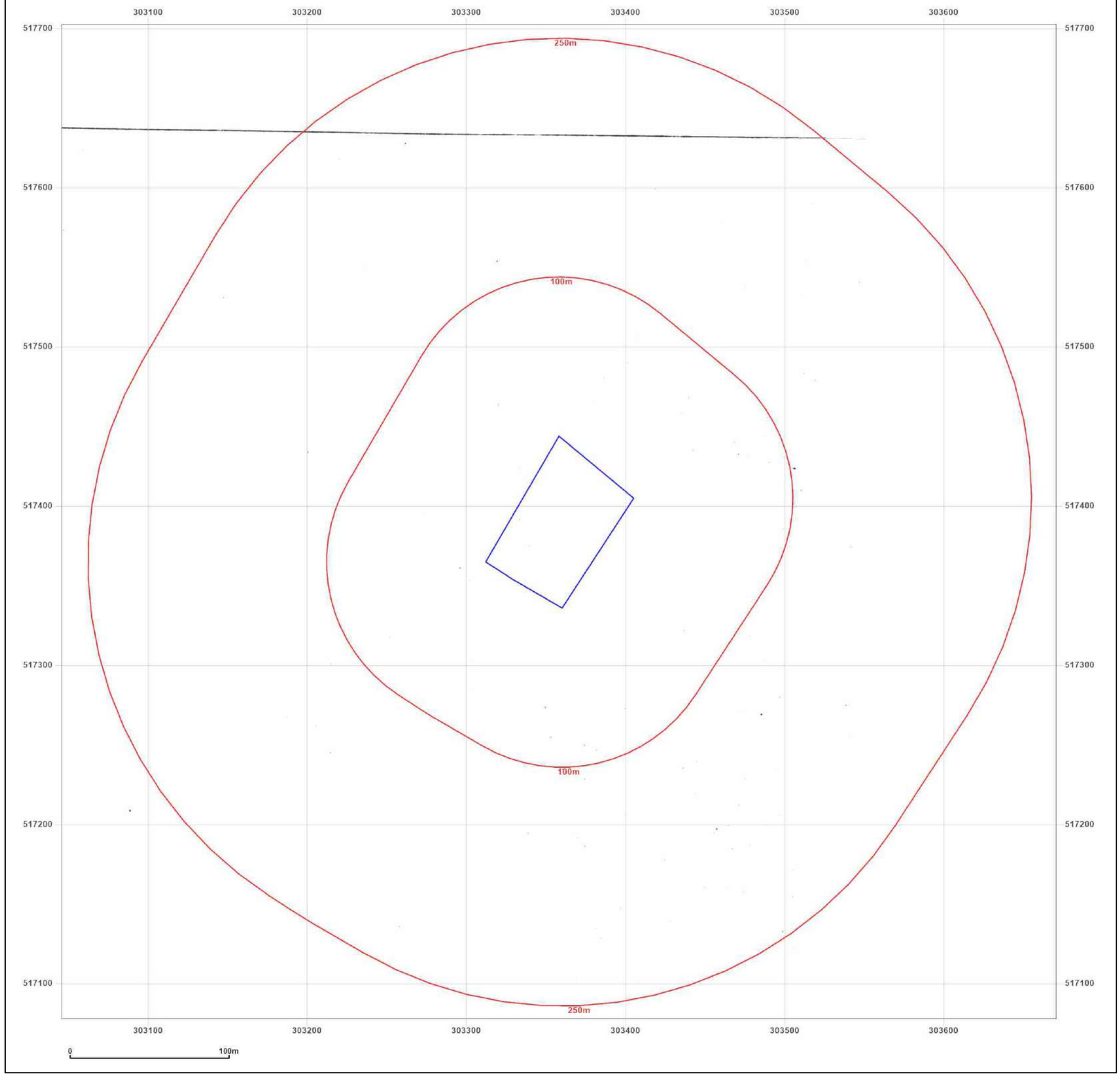
Appendix III

- Historical Map Extracts (GSR)



emapsite™

Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: County Series
Map date: **1863**
Scale: 1:2,500
Printed at: 1:2,500

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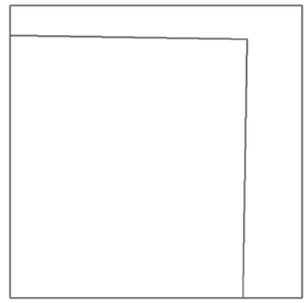

Surveyed 1863
Revised 1863
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 16 August 2022

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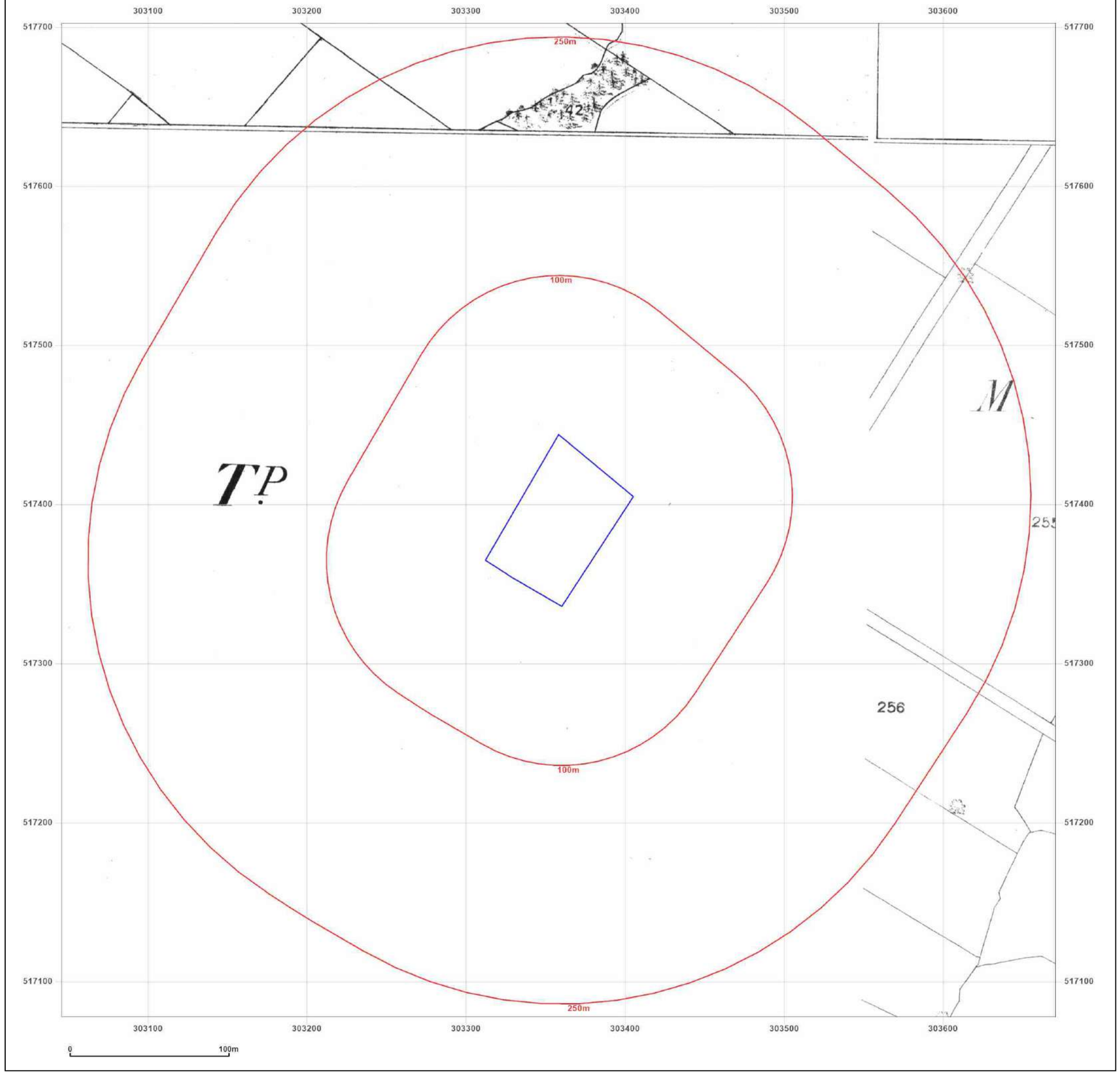

emapsite™

Site Details:

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Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: County Series
Map date: **1863-1864**
Scale: 1:2,500
Printed at: 1:2,500

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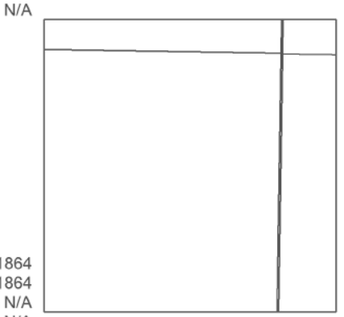
Surveyed 1864
Revised 1864
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1863
Edition N/A
Copyright N/A
Levelled N/A



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Edition N/A
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Revised 1864
Edition N/A
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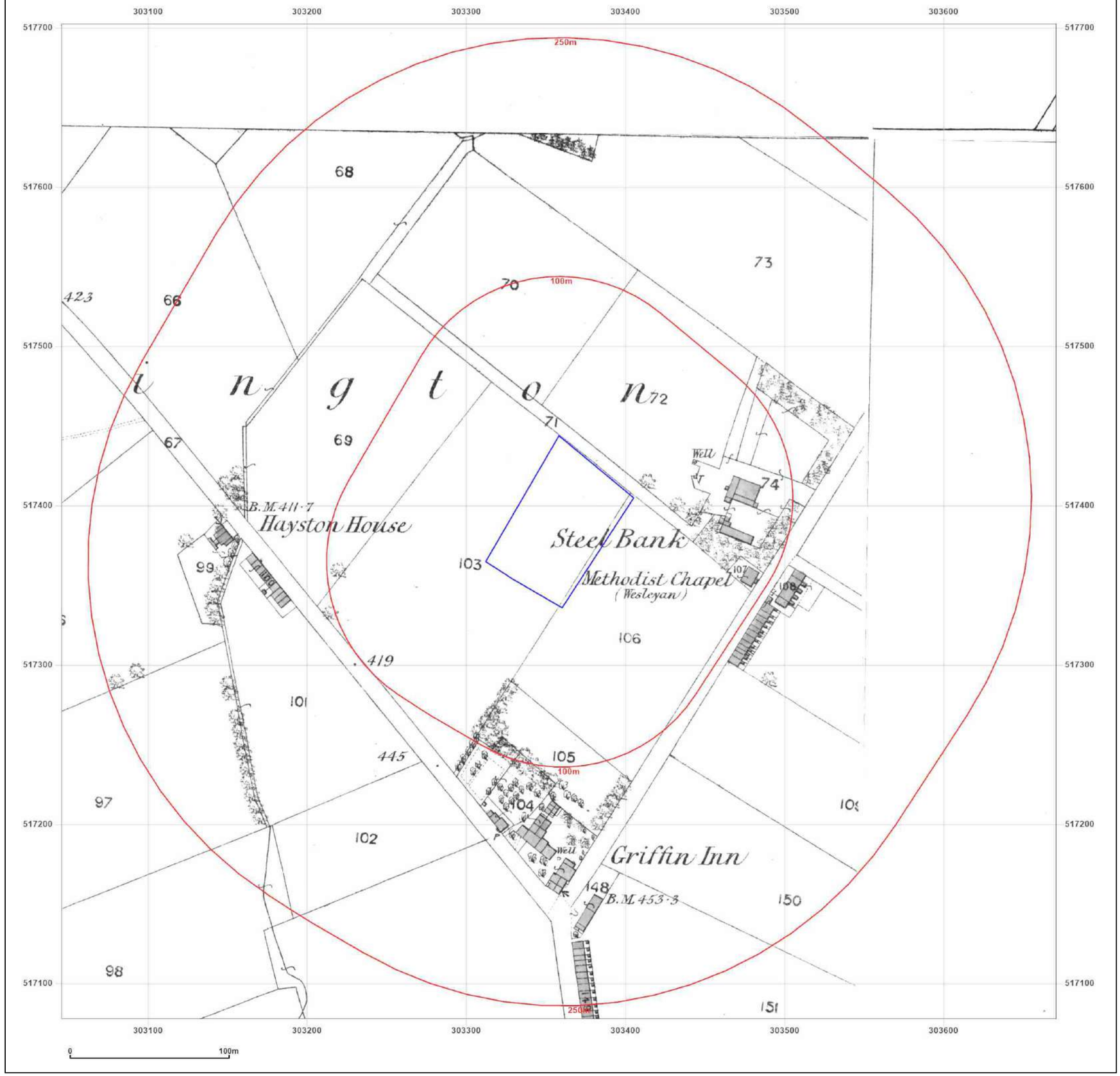

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Site Details:

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Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: County Series
Map date: **1864-1865**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1864
Edition N/A
Copyright N/A
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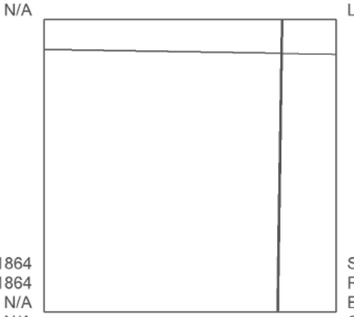

Surveyed 1864
Revised 1864
Edition N/A
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Levelled N/A

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Revised 1864
Edition N/A
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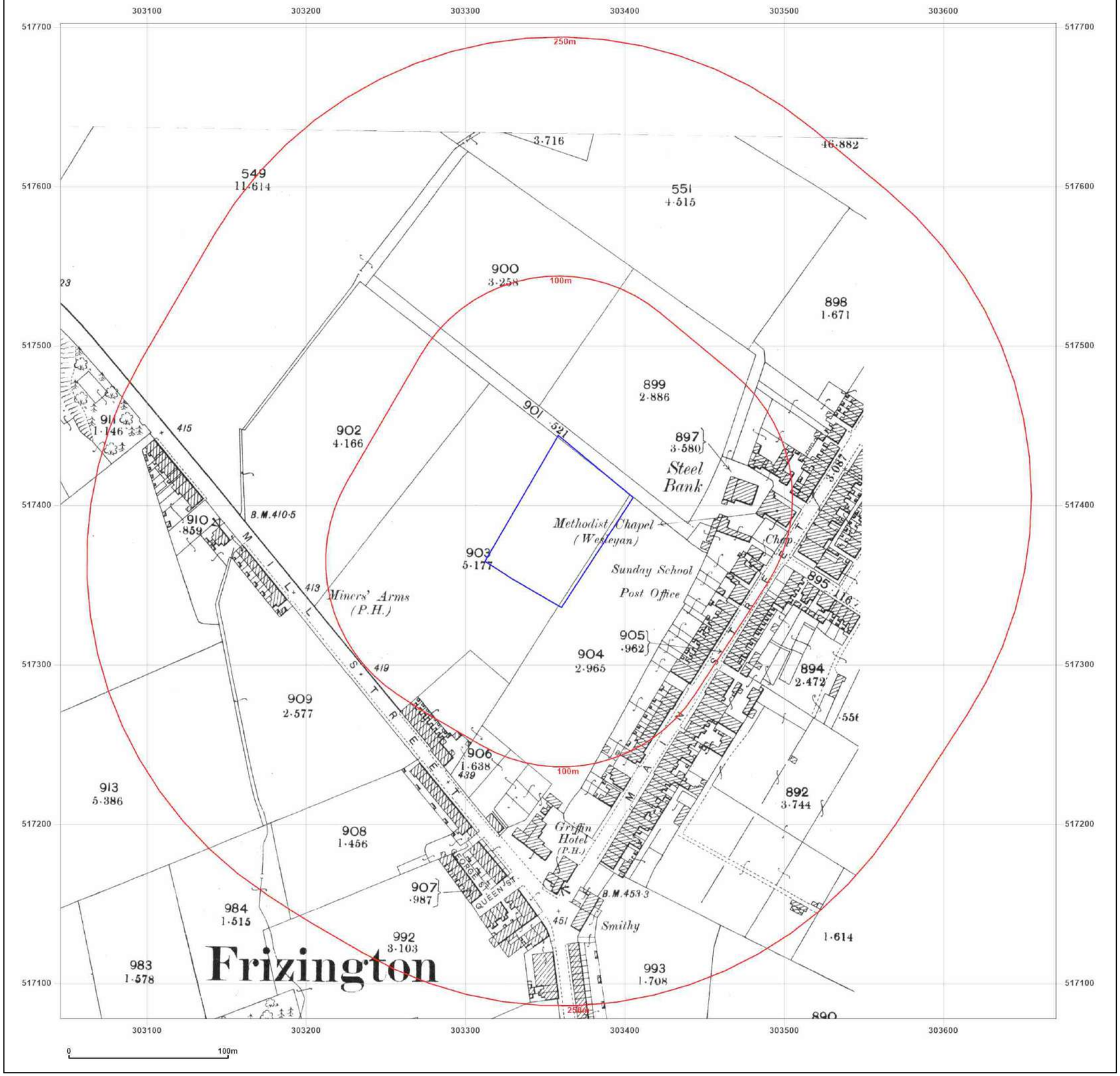

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Site Details:

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Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: County Series
Map date: **1899**
Scale: 1:2,500
Printed at: 1:2,500

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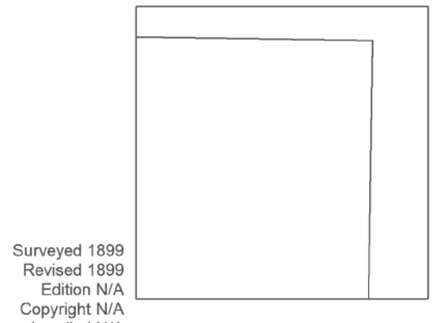

Surveyed 1899
Revised 1899
Edition N/A
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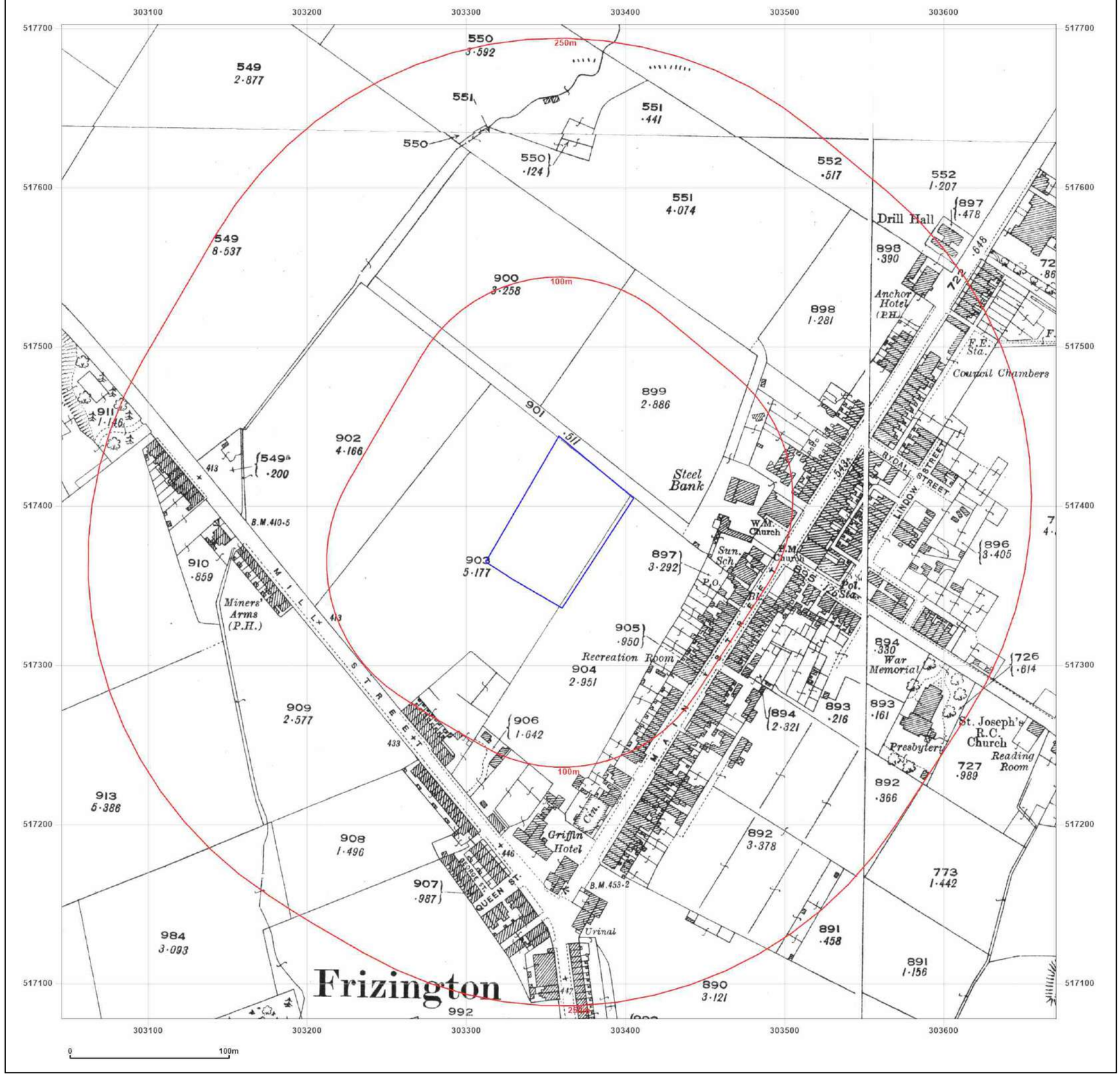

emapsite™

Site Details:

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Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: County Series
Map date: **1925**
Scale: 1:2,500
Printed at: 1:2,500

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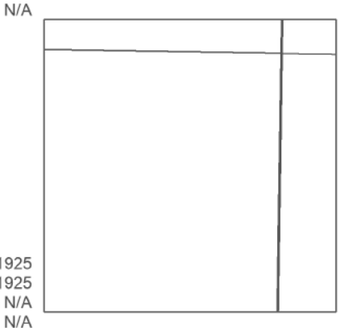
Surveyed 1925
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1925
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1925
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1925
Revised 1925
Edition N/A
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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1956

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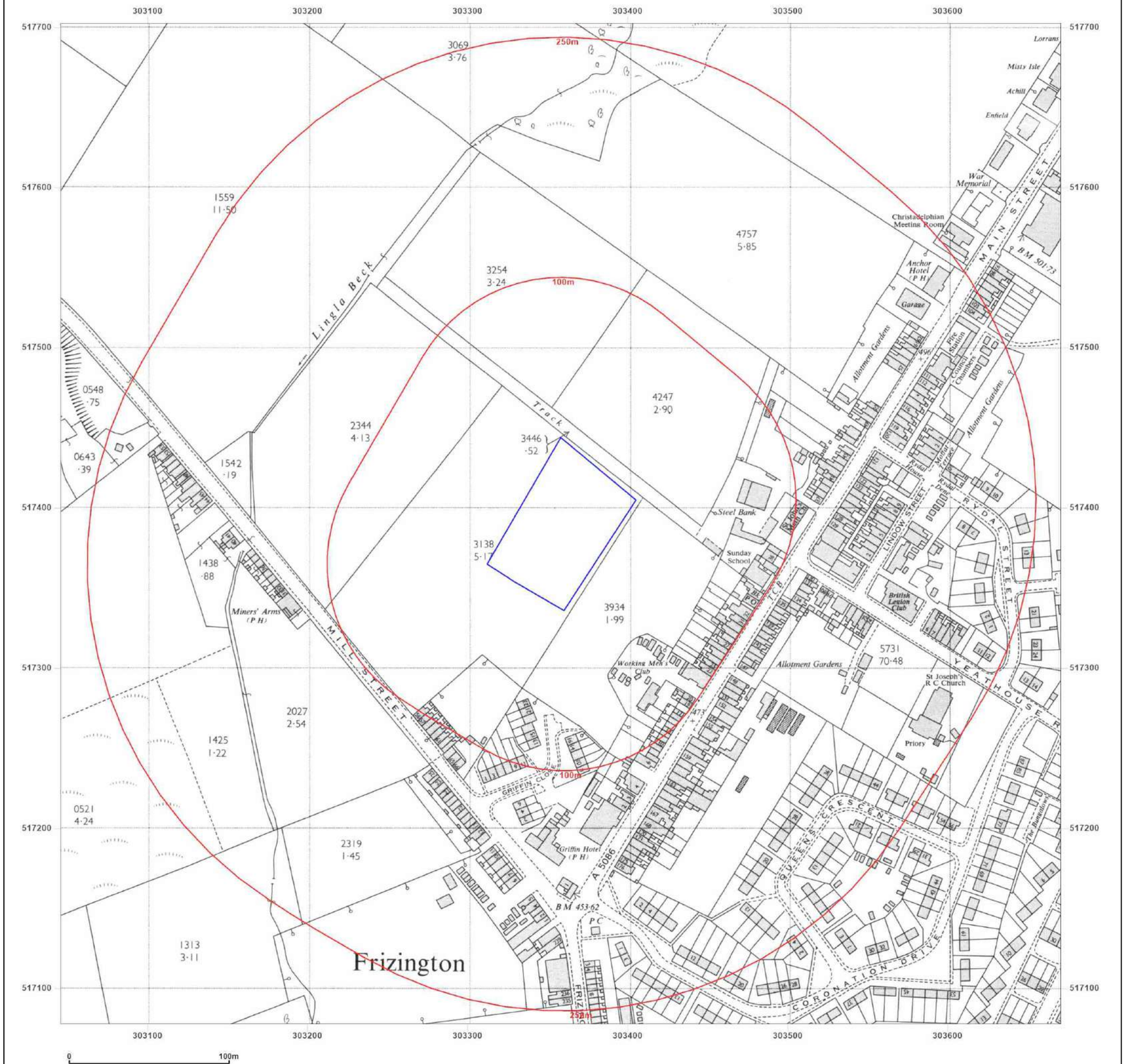

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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: National Grid

Map date: **1966**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1965
Revised 1965
Edition N/A
Copyright 1966
Levelled 1956

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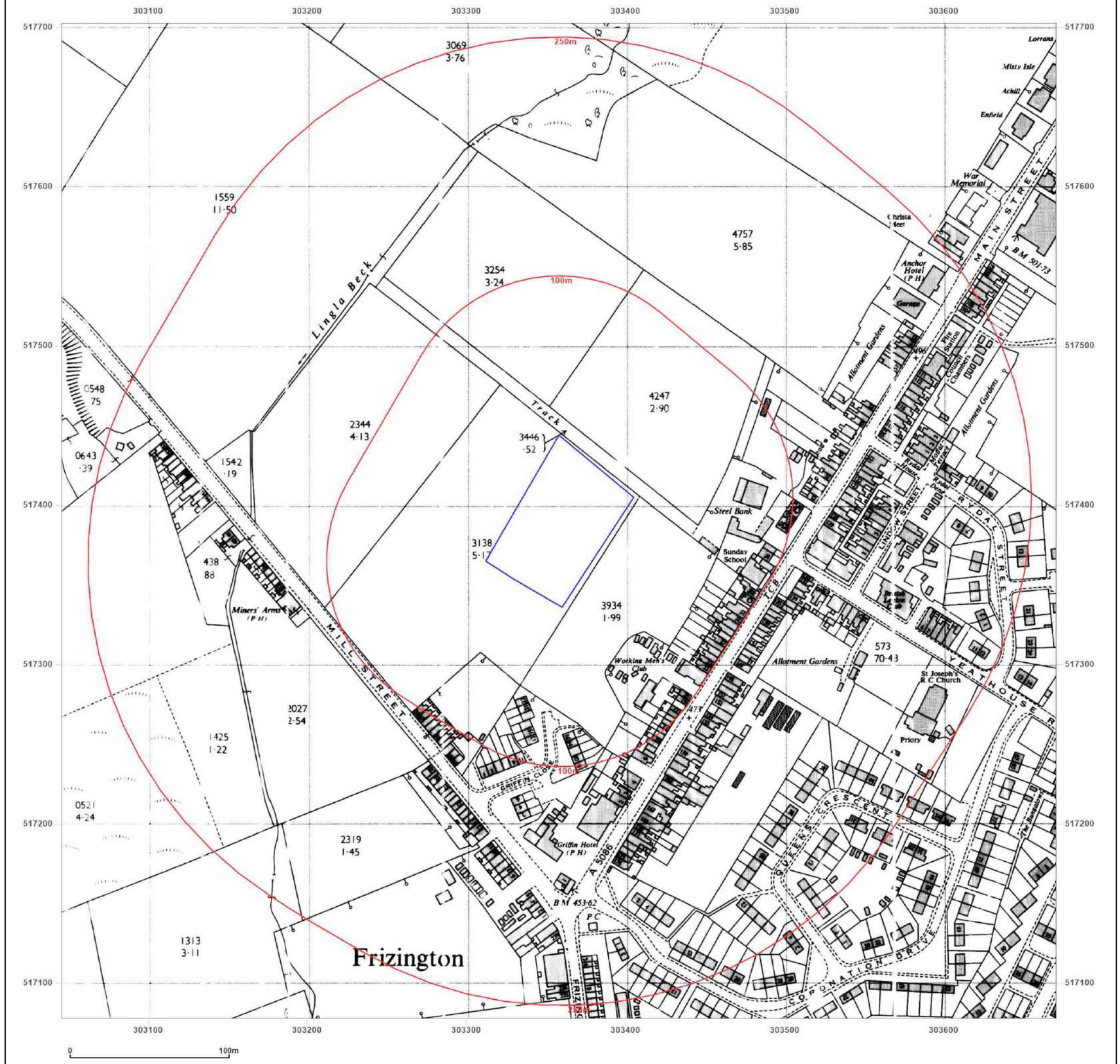

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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: National Grid

Map date: **1966**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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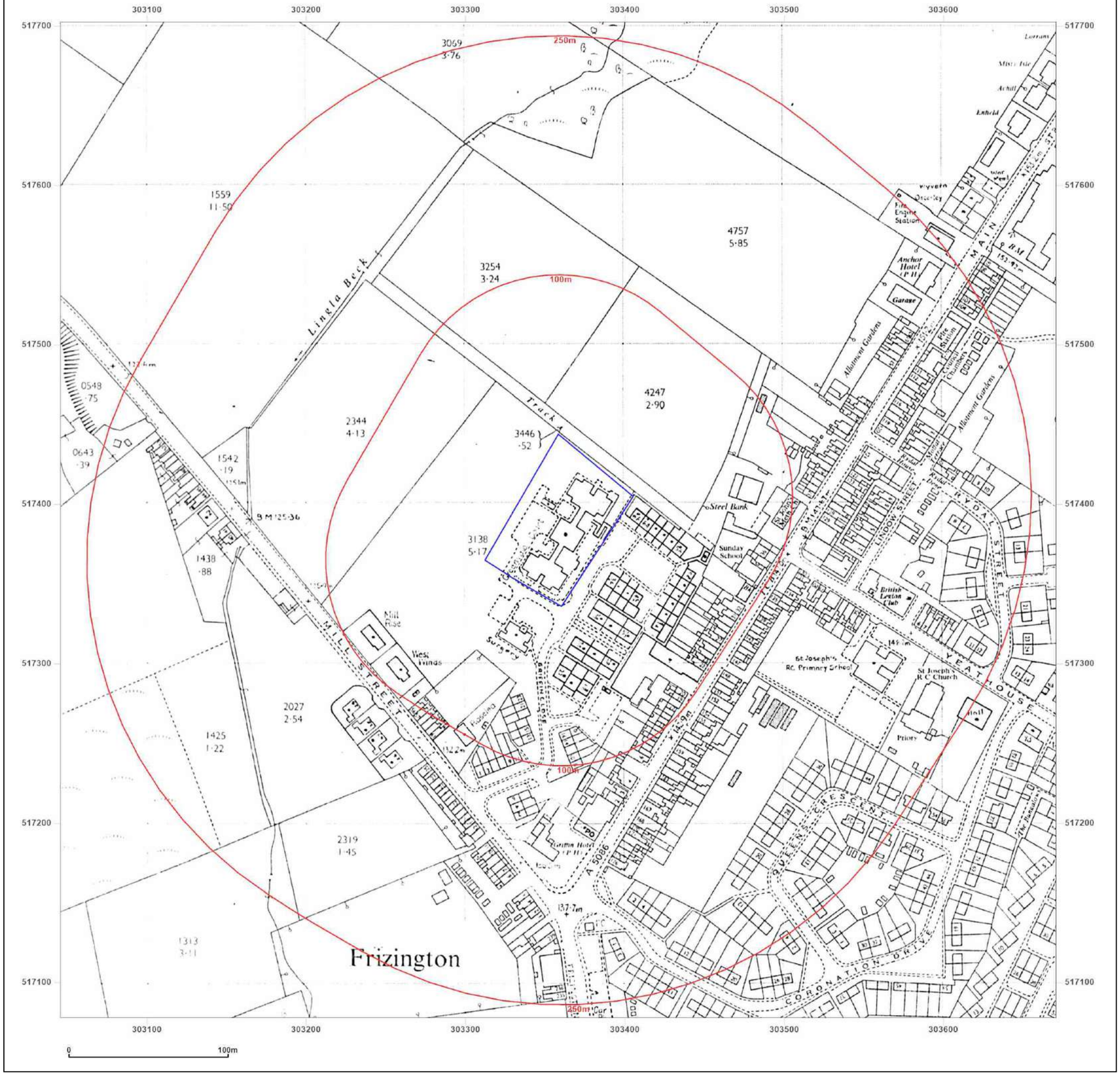

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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: National Grid

Map date: **1981**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1965
Revised 1981
Edition N/A
Copyright 1981
Levelled 1965

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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: National Grid
Map date: **1994**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

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Production date: 16 August 2022

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Site Details:

Client Ref: EMS_804121_996216
Report Ref: EMS-804121_1035231
Grid Ref: 303358, 517390

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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Production date: 16 August 2022

Map legend available at:
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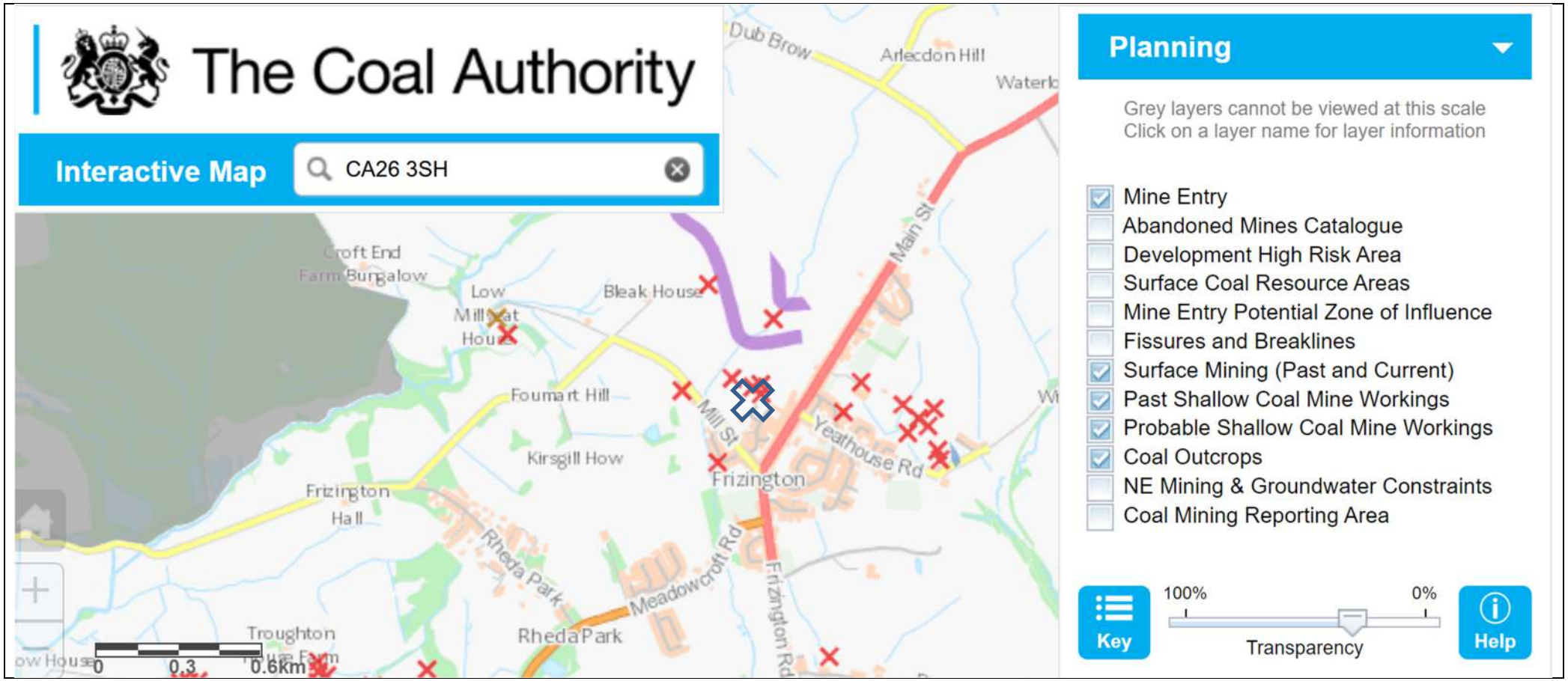
Appendix IV

- The Coal Authority Online Database
- The Coal Authority Coal Mining Report
- The BGS Geological Plan Extract

GEO Environmental Engineering

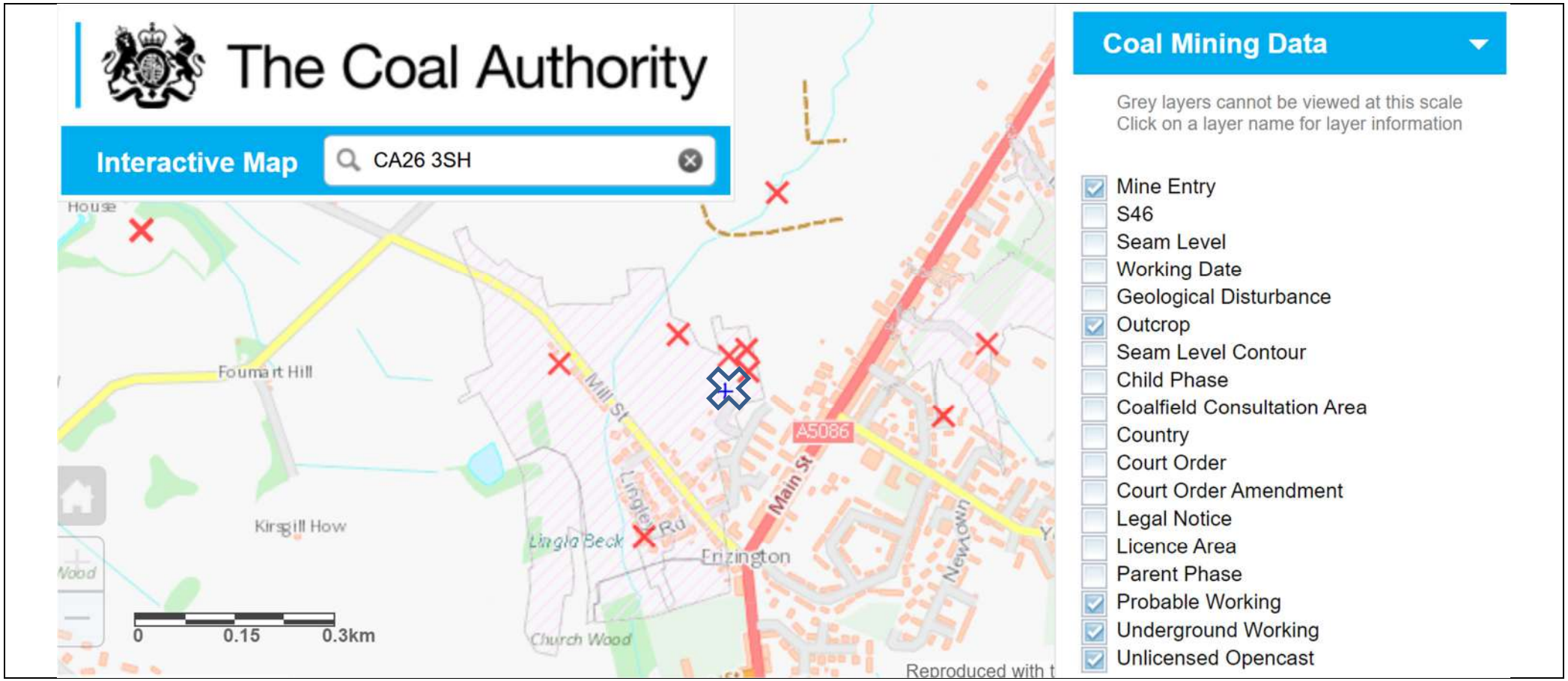
GEO2022-5436: The Coal Authority Online Database



Approximate Site Location marked with the

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 07883 440 186

GEO2022-5436: The Coal Authority Online Database



Approximate Site Location marked with the

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 07883 440 186

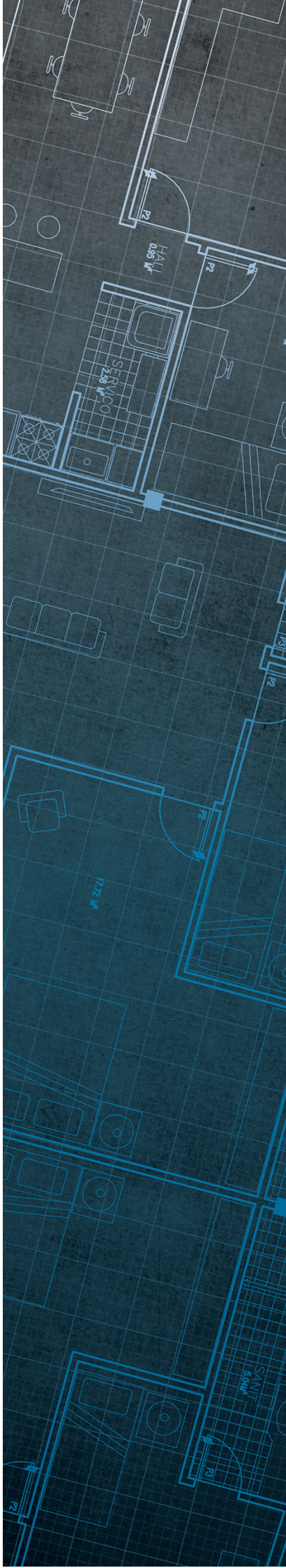
The Coal Authority

Consultants

Coal Mining Report

Land At
Griffin Close
Frizington
Cumbria
CA26 3SH

Date of enquiry:	**16 August 2022**
Date enquiry received:	**16 August 2022**
Issue date:	**16 August 2022**
Our reference:	**51003304997001**
Your reference:	**GEO2022-5436**



Consultants

Coal Mining Report

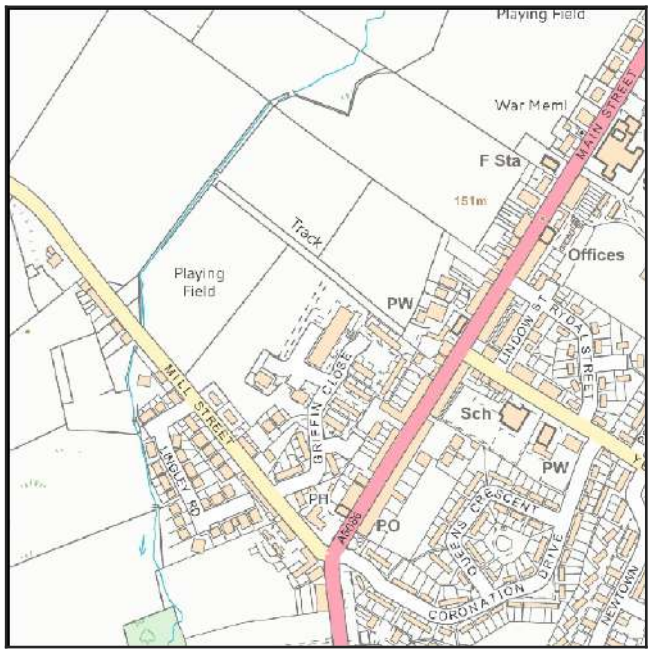
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Curtis Evans

Enquiry address

Land At
Griffin Close
Frizington
Cumbria
CA26 3SH



Approximate position of property

Map data

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	SLATEY	Coal	007X	119	Beneath Property	8.7	North-East	142	1878
unnamed	No 7 Eye Ironstone	Ironstone	A08G	232	East			230	1900

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	303517-003	303365 517461		Coal	
Shaft	303517-005	303338 517451		Coal	
Shaft	303517-006	303368 517428		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

NC176	NW1299	PO0
2921		

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations
None recorded within 50 metres of the enquiry boundary.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence
The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The Coal Authority

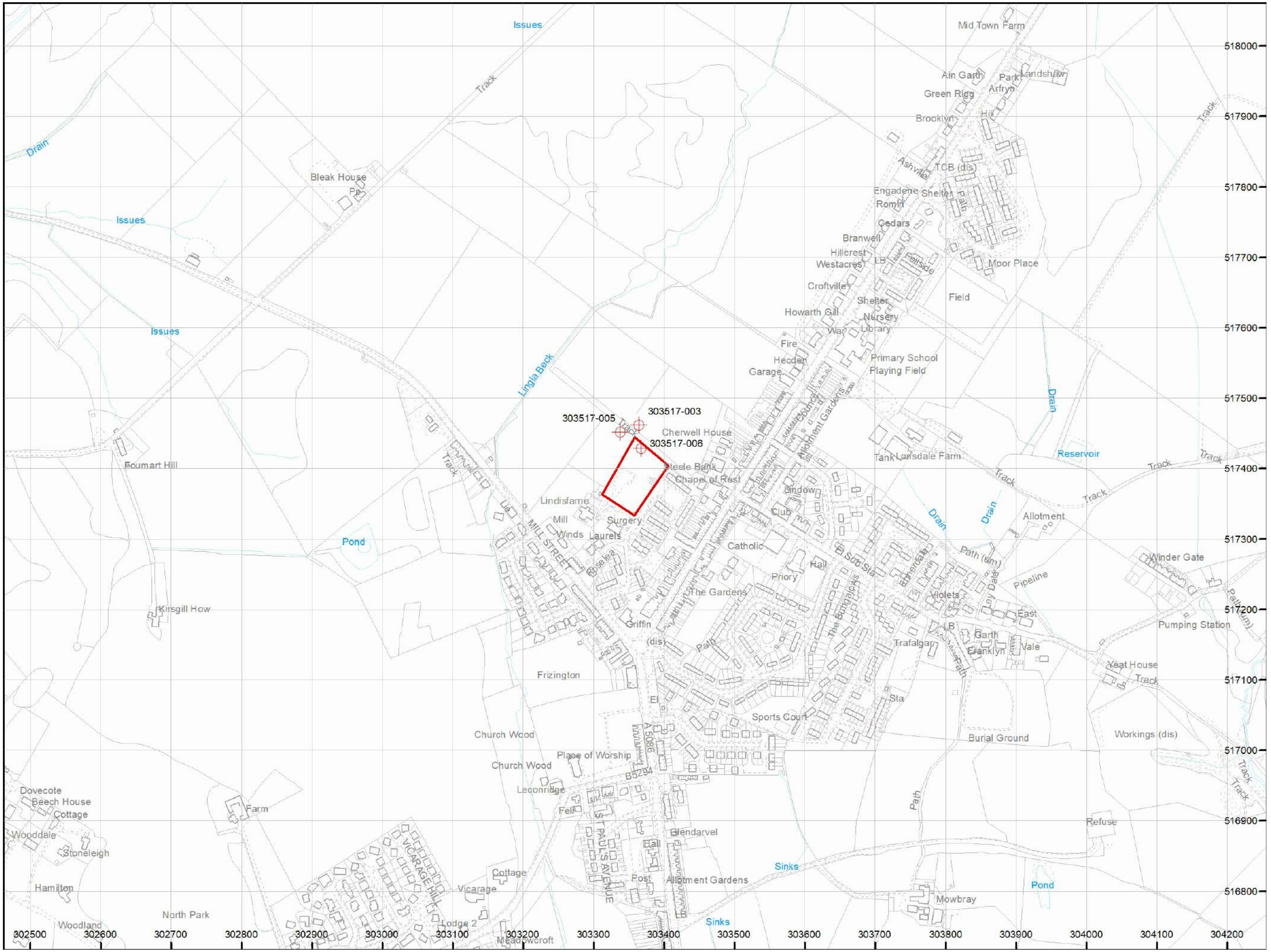
Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Disused mine shaft



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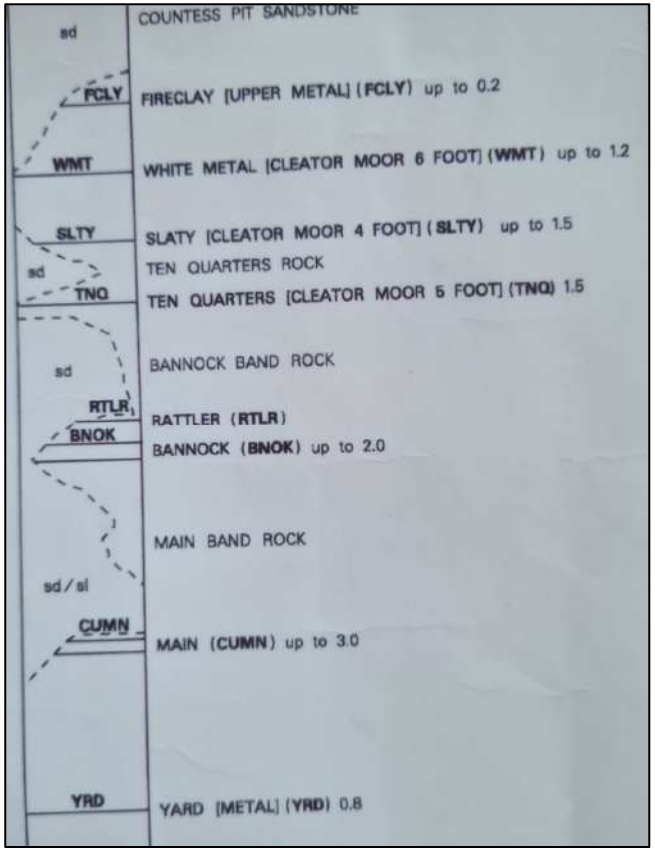
GEO Environmental Engineering

GEO2022-5436: The BGS Geological Plan Extract



Approximate Site Location marked with the

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GEO Environmental Engineering Ltd
Geotechnical
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